The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 137, No. 13 — CHICAGO, ILLINOIS — July 24, 1948.

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SURGICAL AND RADIATION THERAPY FOR CARCINOMA OF THE CERVIX

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The added safety of radical surgical treatment for carcinoma of the cervix, and the recent proposals urging its more extensive use, have made it necessary that the respective merits of methods of controlling the disease be subjected to analysis. Despite their limitations, both radical surgical treatment and radiation therapy have progressively established their value over the course of the last forty years, and sufficient data have accumulated to permit definition of the most promising therapeutic policy by objective consideration of the evidence. In the present report the salient factors bearing on this question will be reviewed.

A satisfactory plan of treatment must be based on knowledge of the pathology of the disease and of its paths of dissemination. A number of studies on autopsy and surgical material have enabled us to specify minimum requirements for a satisfactory plan of treatment (Kundrat, Baisch, Pankow, Martzloff, Pearson, Warren). It has been shown that uremia, general exhaustion, hemorrhage, intestinal obstruction and sepsis are the principal causes of death among untreated as well as treated patients, the anatomic mechanism and clinical background for each of these lethal factors must be sought in the study of patients, and proper corrective measures instituted. Since the disease is almost exclusively confined to the pelvis, the therapeutic effort should be directed to the extirpation or destruction of carcinoma in the uterus itself, the vagina, the parametrium and the group of pelvic nodes referred to as nodes of the first stage; these include the ureteric, obturator, hypogastric, principal node (Leveuf and Godard) and common iliac nodes. These requirements are satisfied by radical abdominal hysterectomy of the type proposed by Emil Ries or by combined intracavitary radium therapy and external roentgen therapy. The radical hysterectomies practiced by Wertheim and by Schauta and their followers have a lesser scope but have proved rather successful in the control of the disease. Occasional cures have been reported after cauterization of the local tumor, simple amputation of the cervix and total hysterectomy either by the abdominal or the vaginal route, but none of these procedures can be given serious consideration in a discussion of effective therapeutic measures, unless supplemented by rather thorough irradiation.

Survival for five years without evidence of the disease is the accepted criterion for assessing the efficacy of methods of treating cancer. Yet there has been repeated infraction of this rule in recent publications urging major changes in policies of treatment. Shorter periods of observation do not permit reliable conclusions as to the permanency of control, while in longer periods the effect of extraneous factors becomes significant. Thus deaths from intercurrent disease and loss of patients from observation cast too great an influence on the relation between the number of patients treated and those known to be well, if the chosen period is unduly long. Since carcinoma of the cervix presents many clinical variations, a great deal of deliberate or involuntary selection is practiced. This has necessitated that statistical evaluation of results be performed only under rather stringent rules. Those proposed by Winter early gained wide acceptance, and similar ones were adopted by the Radiologic Sub-Committee of the League of Nations. Unless otherwise specified, the absolute salvage rate will be used in all our comparisons. By this is meant the proportion of patients alive and well at the end of five years out of the entire number of applicants, whether treated or not. The absolute salvage rate of a clinic is indicative of its minimum achievement and is considered the only reliable means of comparing the work of different institutions or different methods of treatment. However, inequalities in the initial clinical material persist—that is, the proportion of cases of

Read before the Section on Radiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

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Because of lack of space this article has been abbreviated in THE JOURNAL by omission of the bibliography. The complete paper will be found in the authors' reprints, which the authors will be pleased to send on request.

advanced disease varies in different institutions. For this reason several schemes have been proposed for classifying the cases on admission. Of these the League of Nations classification is the one most widely employed and will be used exclusively in our tabulations.

The historical evolution of treatment has been traced in valuable papers by Schmitz, O'Brien and others, and the topic will not be rehearsed here. Progress in the results of treatment for carcinoma of the cervix is well illustrated by the experience at Mayer's clinic, in Tübingen, which is typical of many others. The data (given by Reichenmiller) have been expressed graphically in charts 1 and 2.

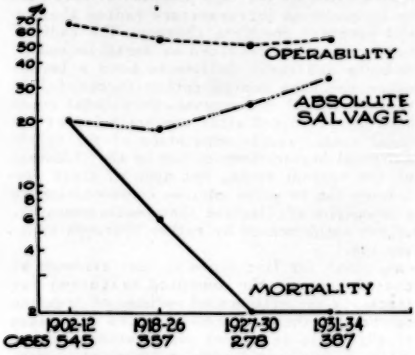

Chart 1.—Progress in the treatment of carcinoma of the cervix (Mayer, Tübingen, 1902-1934).

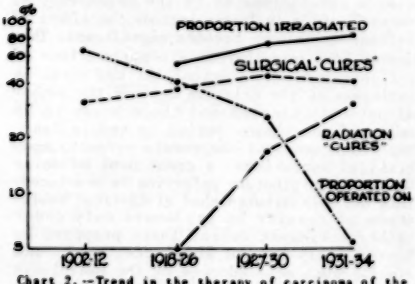

Chart 2.—Trend in the therapy of carcinoma of the cervix.

It can be seen that the quality of the clinical material, as shown by the operability rate, has, if anything, deteriorated. Still, there has been a sharp rise in the absolute cure rate simultaneous with a decided drop in the mortality from treatment. Chart 2 exemplifies the general trend of treatment until recent years. There has been a gradual increase in the proportion of irradiated patients with a reciprocal decline in the proportion of those submitted to radical surgical treatments. The salvage in the surgical group has remained unchanged since the early part of the century, while the radiation salvage has shown progressive improvement. Nevertheless, many gynecologists have continued to practice the operative treatment, and have maintained it at a high level of efficiency.

TABLE 1.—*Results of Radical Surgical Therapy for Carcinoma of the Cervix*

A. Abdominal Hysterectomy	Period	Total Cases	Operative Mortality Per Cent	Operable Cases Per Cent	Five-Year Cures Per Cent	Five-Year Salvage Per Cent
1929 Aertheim-Brabel	1898-1921	2,201	69	16	17	
1921 Zweifel-Schweitzer	1910-1915	443	55	8	28	
1930 Von Jaschke	1919-1925	130	59	5	23	
1922 Hoffmeier (Handwalschnitt)	1910-1916	213	59	15	20	
1917 Diderlein	1908-1912	265	61	19	20	
1920 Mayer	1902-1912	545	[illegible]	20	20	
1941 Danner (private patients)	1907-1936	290	[illegible]	14	25	
		(est.)				(est.)
1920 Graves		181	65	5	18	
1929 Kermauner	1916-1923	976	63	11	26	
1929 Stoeckel (Claudius)	1910-1916	350	69	19	27	
1919 Ruge (Schäfer)	1911-1913	134	77	12	29	
1918 Franz	1904-1907					
	1910-1912	261	87	39	28	
Total	(1898-1936)	6,591	54	15	22	
1942 Shaney (Private Patients)	1907-1927	133	87	9	31	
B. Vaginal hysterectomy (Schauta)						
1930 Peham & Amreich	1901-1929	1,787	50	6	19	
Total		8,378	58	11	21	

SURGICAL THERAPY

Radical surgical therapy for carcinoma of the cervix has been used with three objectives in view: (1) as the sole method of treatment, in which case from 50 to 80 per cent of the patients are subjected to operation; (2) as a means of treating the more favorable cases, so that from 20 to 50 per cent of the patients are operated on, and (3) as a supplement to radiation for the earliest stages, when only 10 per cent or less of the patients are operated on. The distinction is important because the operative mortality and the recovery rates are quite different. Table 1 shows what the ablest surgeons of the world have accomplished when the operation is given its widest possible scope. This record of success must be acknowledged as one of the great achievements in the surgical therapy of cancer. Even so there are no longer any proponents of the exclusive use of surgical therapy. Instead, the aim has been to afford each patient the maximum opportunity for recovery with minimum primary risk: in favorable cases, averaging one third of the material, the patients are operated on and often irradiated too, while the rest are treated by radiation alone. This plan has been called "elective therapy" by Stoeckel and appears to be widely practiced in Central Europe. Table 2 demonstrates that "elective therapy" gives significantly better results than those obtained during the strictly surgical era. The modern surgeon, conscious that the patients whom he rejects are not necessarily doomed, can set up extremely rigid criteria for his operative cases. He can exclude all patients on the borderline of operability, the ones who have systemic complications that increase the risk of operation, and also the feeble, the aged and the obese.

If to this careful selection is added perfection of surgical technic, and the advantages of general surgical progress, in the way of improved anesthesia, antibiotics and transfusion and other supportive measures, it is not surprising that the surgeon of sound judgment and good training has every right to practice the operation, confident that his patients run a negligible risk. The control of shock and sepsis and the more restricted selection of patients have made possible the reduced operative mortality rates shown in table 3. There has been a corresponding decrease in the incidence of serious surgical complications. The incidence of urinary fistulas ranges between 2.9 and 12 per cent. Some of these heal spontaneously; others require nephrectomy, and still others can be successfully repaired at the cost of a small mortality. Rectal fistulas are less frequent but more serious. Other complications include infection of the urinary tract, the pelvis and the surgical wound. Bonney reported 4 late deaths (1 per cent) as a consequence of operative sequels. An unavoidable disadvantage of surgical therapy is the removal of part or all of the vagina, which makes marital relations difficult or impossible.

TABLE 2.—*Best Results of "Elective Therapy"*

	Period	Total No. of Cases	Percentage Operated	Absolute Percentage
Stoeckel (Lauterstein)	1937	253	36	42
Martius	1926-1936	736	13	37
Stoeckel (Schilling)	1923-1926	465	40	37
Knaus and Wolfrom	1935-1936	373	34	35
Lynch (Horton)	1931-1938	264	8	35
Bumm (Philipp)	1923-1925	484	27	34
Schroeder	1927-1930	327	50	34
Van Roy (Plate)	1923-1934	357	27	33
Warnekros (Burkhardt)	1925-1929	473	16	32
Mihulics-Radecki	1932-1935	307	38	29
Esch (Goeche)	1925-1933	263	10	29
Schlinck and Chapman	1930-1937	258	43	29
Stoeckel (Coffier)	1926-1932	1,314	30	29
Von Pehon	1926-1928	244	54	27
Chydenius	1926-1930	226	11	26
Wolfrom	1932-1934	447	30	24
Totals	1923-1938	6,791	29	32

TABLE 3. - *Improved Mortality of Radical Surgical Therapy*

	Operations	Mortality Percentage
1929 Weibel-Wertheim	500	9.0
1932 Bumm (Philipp)	131	8.4
1939 Werner	152	7.9
1933 Stoeckel (Schilling)	185	7.0
1934 Stoeckel (Philipp)	109	6.4
1937 Schroeder	329	6.1
1938 Mihulics-Radecki	159	4.4
1932 Sussmann	526	4.2
1944 Schlinck and Chapman	112	3.6
1941 Knaus	330	1.5
1945 Meigs	65	0
Total	2,598	5.6
Stage I Cases		
1934, 1944 Taussig (Emmert and Clarke)	106	8.5
1942 Faure	32	3.1
1943 Jones and Jones	36	2.8
1944 Lynch (Horton)	78	2.6
1938 Martius (Erichsen)	41	2.4
1942 Martius and Kepp	54	1.9
1941 Knaus	147	1.4
Total	494	3.4

Distribution of Recurrences.—According to Bonney, reactivation of the disease following surgical treatment may occur in the pelvis or in distant areas. Among his 430 operative survivors there were 193 recurrences, an incidence of 45 per cent within five years. Three fourths of the recurrences appeared within the pelvis and the balance in distant regions. More specifically, the operative survivors had local recurrences in the vagina, rectum or bladder in 11 per cent; in the soft tissues and bones of the pelvic wall in 22 per cent; in the abdomen and spine, in 8 per cent; in the lungs, in 2 per cent and in other areas in 1 per cent. It is thus seen that failure to control the disease surgically occurs in one third of the operative survivors as a result of renewed activity within the pelvis. Furthermore, 65 per cent of all the recurrences appeared within two years. Schweitzer, Mayer and Weibel reported that 83 to 85 per cent of the recurrences show up within three years. A smaller number of recurrences continue to appear up to the tenth year, and Weibel discovered one sixteen years after operation.

Factors Influencing Recovery.—An effort has been made to correlate the histologic grade of the tumor with the chance for recovery, but observations on this point conflict. Martzloff and Broders showed a definite decline in the recovery rates as the neoplasm becomes more anaplastic. In an analysis of 254 cases Kamnicker could ascribe no prognostic significance to the degree of ripeness of the tumor when the Schauta operation was performed, whether it was used alone or in combination with radiation therapy. A similar conclusion must be derived from the material analyzed by Philipp (52 cases), though in an earlier report he stated that 8 out of 10 patients with low grade tumors without nodes remained well for five years. The age of the patient has been found significant in relation to the operative mortality. Franz had 6 operative deaths among 12 women past 60, none of whom survived five years. Fourteen who were less than 30 years of age had no surgical mortality, and 8 remained well five years. Clauberg reported 31 per cent five year salvage in 51 women past 55 as compared with 50 per cent in 109 younger women. Schweitzer confirmed the inferior results in the advanced age groups, but pointed out that no patient less than 30 years of age remained well for five years. Weibel in an analysis of one thousand operations reported no correlation between the

incidence of recurrence and the age of the patient.

The clinical and anatomic extent of the disease affect recovery. Weibel and Kermauner classified their cases after operation into four groups, according to the extent of involvement of the pelvic structures. In the first and second groups were incipient and extensive lesions of the cervix, respectively; in the third, involvement of the parametrium or the pelvic nodes was noted; in the fourth, there was fixation to other structures, making dissection difficult and in some instances requiring resection of the bladder, ureter or rectum. The recovery rates in the combined material were as follows: group A, 206 cases, 62 per cent; group B, 700 cases, 50 per cent; group C, 548 cases, 25 per cent; group D, 167 cases, 11 per cent. Weibel had only 1 recovery among 38 patients requiring some form of resection. Bonney considered invasion of the bladder incurable by surgical treatment and expressed the belief that resection of the bladder is useless. On the other hand, 5 recovered out of 13 in whom he performed grafting of the ureter. According to Martzloff and to Norton microscopic proof of parametrial invasion is a sign of incurability. Extension of the disease beyond the cervix not only impairs the chance for recovery but also increases the immediate mortality. Thus, the mortality was 10 per cent in groups A and B and 20 per cent in groups C and D. A correlation can be established also between the chance for survival and the extent of the disease determined by clinical examination. The following recovery rates were obtained by combining material reported by Schilling, Schroeder, Lauterwein and Caffier: stage 1, 115 cases, 68 per cent; stage 2, 324 cases, 42 per cent; stage 3, 84 cases, 33 per cent. (Compare with radiation results in table 11).

TABLE 4. — *Microscopically Proved Pelvic Node Metastasis And Its Influence On The Surgical Results*

		Cases with Metastases	Well 5 Yr. Percentage	Cases Without Metastases	Well 5 Yr. Percentage	Incidence of Metastases Percentage
1929	Weibel	214	9	786	40	21
1921	Zweifel (Schweitzer)	53	9	190	60	30
1932	Hunn (Philipp)	26	15	191	60	12
1906	Ries	6	(67)	2	(100)	(75)
1941	Bonney	200	21	300	53	40
1941	Winterton-Bindeyer	18	22	46	41	28
	Totals	517	15	1,515	51	25
Primary Mortality		19 (438 Cases)		14 (1,134 Cases)		

Metastasis to Pelvic Nodes.—Table 4 exhibits some of the factual data available on the relationship of recovery and carcinomatous involvement of the pelvic nodes.

Whereas half the patients without metastasis remained well five years after surgical treatment, only less than one sixth of those with microscopic proof of metastasis in the nodes recovered. In addition, the presence of metastasis increased the operative risk. This has made some operators abandon routine dissection of the pelvic nodes, which seems to be an error, since dissection has been shown to improve the salvage significantly by about 5 per cent.

Preoperative and Postoperative Irradiation.—Many surgeons have combined roentgen and radium therapy with operation, hoping to improve the results. Adler is convinced of its worth and reported 59 per cent salvage when the Schauta operation is combined with moderate irradiation, as compared with 42 per cent when the operation alone is done. Mayer, Zweifel and others have advocated the combined treatment. In 1934 Lacassagne pointed out that the amounts of radiation employed in combination with surgical treatment were considerably below the doses that could be expected to have a lethal effect on residual cancer cells. He objected that adequate therapy by radiation would be handicapped if recurrences appeared later. This line of reasoning has been repeatedly employed in connection with postoperative therapy in other sites, as a substitute for consideration of the actual facts. The facts prove the value of combined treatment beyond any reasonable doubt. Schinz in 1936 made an analysis of the results reported by ten clinics. His findings were as follows:

Operation	Operation and Radiation
337 patients well out of 882	446 patients well out of 807
Recovery rate 41.0 ± 1.7%	Recovery rate 55.5 ± 1.6%

Difference 14.3 ± 3.66%

The observed difference is nearly four times the standard error, a deviation that could be ascribed to chance only once in a thousand trials. Hence it is proper to conclude that when radiation is added to surgical therapy the results are decisively improved. We have been able to collect the following corroborative evidence:

	Surgical Treatment	Surgical Treatment and Radiation
Masson	221 cases, 40%	217 cases, 56%
Stage 2 (collected cases)	374 cases, 39%	228 cases, 53%
Stage 3 (collected cases)	117 cases, 26%	94 cases, 33%

The stage 2 and 3 cases were collected from authors listed in table 12. The chi square test indicates that the results are significantly improved by radiation in stage 2 and in Masson's cases; the stage 3 cases are in groups too small to yield reliable conclusions.

Lynch and Martzloff have emphasized an additional advantage of preliminary irradiation. Its healing effect reduces infection, and the risk of peritonitis at operation is thereby minimized.

RADIATION THERAPY

As indicated in table 5, irradiation first established its value as a palliative agent in the treatment of advanced disease. In this

respect it remains unrivaled and unchallenged today. Not only are symptoms relieved but life is prolonged, as attested by comparison of the

TABLE 5.—*Palliative Effects of Radiation Therapy in 375 Inoperable Cases* *

	No. of Cases	Complete Relief, Percentage	For Over a Year, Percentage	Unimproved, Percentage
Bleeding	342	90	35	7
Discharge	336	60	46	15
Pain	234	53	40	28
Rendered fit for work	231	62	45	38

* Heyman, 1927.

survival curves of treated and untreated patients in chart 3. Of greater importance of course is the ability of radiation therapy to produce definitive cures. Between 1908 and 1915 several clinics turned to the exclusive use of radiation therapy, and the success achieved with this safer method (table 6)

TABLE 6.—*Earlier Results of Radiation Therapy For Carcinoma of the Cervix*

	Period	No. of Cases	Absolute Salvage Percentage
Burnam, Baltimore	1911-1927	1578	17
Döderlein, Munich	1913-1929	2202	19
Eymer, Heidelberg	1913-1929	523	24
Heyman, Stockholm	1914-1931	2104	22
Schmitz, Chicago	1914-1927	489	19
Healy, New York	1915-1925	1574	23
Masson (Mayo Clinic) Rochester	1915-1933	2147	26
Wintz, Erlangen	1915-1932	1539	19
TOTAL	1910-1933	12,255	21

prompted a nearly complete replacement of radical surgical treatment. Improvements in technic have brought about further gains in the absolute salvage as demonstrated in table 7.

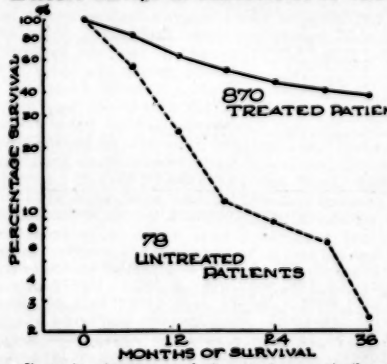

Chart 3.—Carcinoma of the cervix: survival curve, Charity Hospital of Louisiana at New Orleans, 1930-1944.

Mortality.—The principal risk of radiotherapy is exacerbation of sepsis, which may become severe enough to terminate fatally. Other factors related to treatment are exhaustion and embolism. Table 8 illustrates the range of mortality reported in the literature.

As in the case of surgical therapy, the mortality is dependent to a large extent on the manner in which treatment is executed. Clinics where excochleation or cauterization of the cervical tumor is practiced routinely report rather high primary mortalities. Feeble and aged patients with intercurrent disease may die of exhaustion if the treatment is carried too aggressively. This has been pointed out by Morton in connection with roentgen therapy. That radiation therapy can be carried out with perfect safety is demonstrated by the report of Waterman and DiLeone, who had 353 consecutive cases without a death.

TABLE 7.—*Results of Modern Radiation Therapy*

	Period	Total No.	Absolute Salvage Percentage
1941 Meisin	1924-1933	440	38
1944 Heyman	1934-1938	1,287	36
1943 Eymer (Ries)	1934-1937	959	36
1941 Hurdon	1925-1933	813	35
1943 Gauss	1924-1937	753	34
1944 Hultberg	1927-1937	378	34
1941 Ward	1929-1933	214	33
1941 Schreiner	1931-1933	449	32
1941 Lacassagne	1929-1933	798	31
1942 Mayer	1931-1934	360	31
1941 Chievitz	1931-1933	605	30
1941 Healy	1931-1933	422	25
Total	1924-1938	7,528	33

Morbidity and Sequels.—Immediate morbidity is manifested in the form of radiation sickness, exhaustion or irritative phenomena in the skin, the urinary and the intestinal tracts, and by flare-up of latent infection. Under skilful management these reactions are transient and rarely associated with severe discomfort. Late sequels become apparent as

TABLE 8.—*Primary Mortality From Radiation Therapy*

	No. of Cases	Deaths	Percentage Mortality
Schroeder, stage 1-2	51	2	3.9
Schroeder, stage 3	202	18	8.9
Caffier	101	8	7.9
Caffier	804	6	0.7
Morton (roentgen therapy)	374	18	4.8
Mikulicz-Radecki	301	9	3.0
Dietel	540	14	2.6
Dietel	120	1	0.8
Heyman	1,017	19	1.9
Ward	626	10	1.6
Regaud	600	9	1.5
Hurdon	1,249	18	1.4
Bowing	981	11	1.1
Eymer and Ries	232	2	0.9
Smith and Dresser	549	5	0.9
Voltz	504	3	0.7
Waterman and DiLeone	353	0	0
Total	8,504	153	1.8

injuries of variable severity. They include ureteral obstruction, claimed to be due to edema or fibrosis, ulcer of the bladder, factitial proctitis, intestinal bleeding and obstruction, and fistulas of the bladder, rectum or intestine; in addition in less than 1 per cent of the cases fractures of the femur or of

the pelvic bones develop. The most frequent complication is fistulous formation, which arises in the majority of instances in connection with recurrence; that is, from failure to control the disease by radiation. Healy reported 95 fistulas among 2,052 patients treated between 1916 and 1932, an incidence of 3.2 per cent. In early lesions it was 1.4 per cent, in all primary cases 2.5 per cent and in recurrent cases 6.4 per cent. Infection, repetition of treatment and the employment of interstitial foci increased the incidence. These findings were confirmed by Maliphant, who added that the average length of life following the appearance of a fistula was ten months. Recently Taylor and Twombly were forced to abandon interstitial radium therapy because of the high incidence of complications. The perfection of intracavitary radium technics has made fistulous formation from radiation itself a rare accident. Hurdon found only 2 among 700 patients treated at the Marie Curie hospital. Dietel had none among 316 patients. Factitial proctitis and ulcers of the bladder have been practically eliminated in many clinics. Dietel reported 1.26 per cent, Hurdon 2 per cent, and at Charity Hospital there was 1 per cent. In a few clinics the incidence and severity of sequels have been much greater. Smith and Dresser reported late deaths from radiation injuries in 2 per cent of their cases, but, as they declared, at least half were due to injudicious overtreatment. In addition 21 per cent of the five year survivors had complications that could be attributed to treatment. Waterman and DiLeone reported injuries to the urinary tract in 12 per cent of their cases and to the intestinal tract in 13 per cent. As pointed out by Leucutia, these discrepancies are related to the variation in the methods of treatment practiced. The following factors tend to increase the incidence of undesirable sequels: Employment of large roentgen ray fields, especially with supervoltage, giving unnecessary irradiation to the intestine, bladder and rectum; administration of the same air dose to all patients, disregarding the geometric relations in the individual case; cross firing the cervix itself with several roentgen ray fields before or after heavy radium therapy; concentrating the treatment in a brief space of time; improper distribution of radium foci; injudicious repetition of treatment, and employment of interstitial radium therapy.

Permanency of Healing.—Comparison of the results of surgical therapy and irradiation at five years discloses no reason for preferring either, but the claim has been advanced that the incidence of recurrence is greater after five years among irradiated patients. For this reason we have gathered some pertinent data in tables 9 and 10. No significant differences can be demonstrated in the absolute salvage obtained by radiation and by surgical treatment after ten years. Over the span of a decade deaths from intercurrent disease assume significance; as a consequence Paterson has suggested that the ten year rates should be computed on an actuarial basis. When this is done the risk of dying from cancer in the ten years succeeding treatment is about 75 per cent.

TABLE 9.—*Therapeutic Results at 10 Years*

	No. of Cases	Percentage Salvage
Radical Surgery		
1941 Bonney	660*	20
1932 Stoeckel	198	20
Total	858	20
"Elective Therapy"		
1944 Schlinck and Chapman	89	27
Radiation		
1938 Ward and Sacket	359	17
1946 Paterson and others	205	22
1945 Waterman and DiLeone	309	22
1942 Hurdon	227	23
1945 Smith and Dresser	267	28
Total	1,367	22

* Estimated from his operability rate.

Permanency of healing can be determined by the ratio of ten to five year survivors (Kimbrough and Tompkins). This ratio averages 75 per cent in cases of irradiation and is approximately the same in operative cases, though information on this point is rather incomplete. Such finding is contrary to expectation; the ratio should be significantly higher in the surgical groups. Operative patients have a better life expectancy at the time of treatment. They include a greater proportion of favorable lesions; their mean age is lower, and they are otherwise selected because of superior physical status and greater freedom from complications. All these factors should militate against equality of survival. Consequently, equal ratios mean greater success with the inherently poorer material handled by radiation. The incidence of recurrences among the five year survivors was determined by Lauritzen in a group of 222

TABLE 10.—*Permanency of Healing*

		10 Year Survivors	5 Year Survivors	Ratio (Percentage)
Radiation Therapy				
1933	Watson	410	150	73*
1933	Lauritzen	86	115	75
1938	Kimbrough and Tompkins	57	71	80
	Lynch	34	41	83
	Ward and Sackett	62	85	73
1945	Waterman and DiLeone	69	100	69
1945	Smith and Dresser	119	158	75
	Totals	537	720	75
Radical Surgery				
1929	Stoeckel (Clouberg)	39	53	74
1911	Bonney	131	167*	78
	Totals	170	220	77

$\chi^2 = 5.009$, N. S. $P > 50\%$

* Bonney reported 261 survivors among 500 cases followed five years. The ten year survey numbered 415 cases; adjustment was made accordingly.

" cures" followed at Radiumhemmet for periods up to eighteen years. He estimated that the total chance for recurrence after the fifth year is about 12 per cent, and after the tenth year less than 5 per cent. In his series no recurrences were observed after twelve years, but isolated cases are described showing recidivation after the twentieth year.

Factors which Influence Recovery.—Of the numerous factors that have been analyzed only a few can be considered. The age of the patient has been shown to have no consistent relation to the possibility of cure. The same may be said for the grade of the tumor (Bowing and Fricke, Healy and Frazell, Jones and Jones, Wetterdal, Chambers and Gulik). Healy and Cutler and Maliphant showed better results with anaplastic tumors, whereas Glucksmann reported greater salvage in the more adult type. It is probably true that the response of tumors to radiation cannot be predicted reliably by histologic classification prior to treatment. On the other hand, the study of serial biopsies reveals important information, greater use of which will no doubt place the therapy of carcinoma of the cervix on a more rational basis. Histologic changes in the tumor during the course of irradiation have been described by Arneson and Stewart, Warren and his co-workers and others. Glucksmann has placed the analysis of serial biopsies on a quantitative basis and has found that the changes observed constitute an important prognostic aid. Recently Ruth Graham described the changes in serial vaginal smears during the course of treatment using the Papanicolaou stain. She found that the cellular changes give a good indication of the reaction to radiation in the individual tumor. It would seem, therefore, that with increased knowledge of these methods dosage could be modified to suit the individual case, and prompt recognition of the cases that will do badly with radiation may become possible.

Clinical Extent of the Disease.—All series show that the chance for recovery is inversely correlated to the extent of the disease as determined by clinical examination. Table 11 includes cases reported by Schreiner, Heyman, Hurdon, Maisin, Eymer and den Hoed. These authors have been chosen because untreated patients make up a negligible fraction of their material (less than 3 per cent for the total); hence the question of selection can be ignored. In addition a variety of technics is represented, and the individual series are large enough to exclude the distortion produced by a run of favorable or unfavorable cases. Since all these patients were treated prior to the 1937 revision of the League of Nations classification, it is likely that a similar compilation in the future will show lower rates of salvage for stages 3 and 4.

Infection.—The studies of Ducuing, Goldscheider and Garcia and Schlosser have demonstrated that infection is a frequent and serious handicap to treatment and that it significantly impairs the results. Goldscheider gave a recovery rate of 12 per cent in 341 cases with fever, whereas the rate was 52 per cent in 568 afebrile cases. The impressive results achieved in the absence of infection are illustrated in table 11. When it is realized that septic complications of importance are present in one fifth to one third of all cases, it becomes apparent that effective measures to combat infection constitute one of the essential needs.

Efficiency of Treatment.—Complete radiation therapy is not possible in all cases. Factors like infection, urinary obstruction with renal damage, severe debility, intercurrent disease, lack of cooperation on the part of the patient, extremely advanced lesions and anatomic variations like vaginal stenosis and occlusion of the cervical canal interfere with the administration of adequate treatment. These difficulties have been discussed by Lacassagne, Buschke and Cantril and others. Approximately 60 to 80 per cent of the patients seen at most clinics ordinarily receive what is considered full treatment. Naturally the patients completely treated have a better chance for recovery (table 11). The results obtained must be interpreted in the light of the degree of selection that made them possible, but they reveal nevertheless what can be accomplished when favorable circumstances prevail and constitute an inducement for overcoming the obstacles that prevent attaining the same results in all cases.

TABLE 11.—*Results of Radiation Therapy in Relation to Clinical Stage*

	Stage 1		Stage 2		Stage 3		Stage 4		Total	
A. Relative salvage	No.	%	No.	%	No.	%	No.	%	No.	%
Jerusa (1934-1938)	102	67	623	46	366	24	133	10	1,224	37
Hurdon (1943)	68	83	201	59	122	33	148	9	539	37
Schreiner	32	75	77	53	186	43	152	1	447	32
Maisin	5		143	47	270	34	18	17	436	36
Eymer (Ries)	72	67	51	49	63	36	97	17	283	40
den Hoed	20	75	49	51	74	24	14	7	157	37
Totals	279	72	1,144	49	1,071	32	562	8	3,456	37
B. Afebrile cases										
Goldscheider	47	85	153	70	307	46	61	16	568	52
C. Fully treated cases										
Healy and Trombly	61	57	130	40	174	22	6	0	387	34
Peterson and others	6	83	60	52	45	38	13	8	124	44
Garcia and Menville	42	83	103	61	150	33	14	7	309	48
Dobbie	16	75	57	63	45	29	8	0	124	49

Nodes: It is impossible to obtain conclusive information on the effectiveness of radiation in the presence of metastasis to nodes, since only exploration of the pelvis before and after treatment could disclose (incompletely) the status of the nodes. Despite this difficulty it has been stated categorically that radiation cannot control metastases. But indulgence in such assertion is not vindicated by indirect evidence. The fact that some patients with proved metastases have not been cured by radiation is irrelevant; it lacks significance when one realizes that the same is true in surgical cases, and yet we have proof that a few recover after extirpation of the nodes. It has been contended also that radiation has failed in the treatment of metastases in the neck, and there-

fore it cannot reasonably be expected to succeed in the pelvis. This is incorrect. Anatomic circumstances permit thorough ablation of the cervical nodes without sacrificing vital structures; hence radical dissection is frequently the treatment of choice. But this does not mean that radiation is wholly ineffectual. Under suitable circumstances permanent control of histologically verified metastases has been obtained consistently enough to justify reliance on radiation therapy alone.

The salvage attained by radiation in consecutive admissions is presumptive evidence that some cases with metastases are controlled (Smith and Dresser).

In an analysis of Pankow's material, correlating clinical classification and histologic changes after operation, Taylor has pointed out that 76 per cent of stage 3 cases have microscopic evidence of carcinomatous invasion of the lateral parametrial edge or of the pelvic nodes. If one assumes that radiation cannot affect the disease in these areas the salvage in stage 3 cases should rarely exceed 24 per cent. But 1,827 stage 3 cases collected from eleven reports show a salvage averaging 38 per cent (Laborde, Wilkins, Martius and the authors in tables 7 and 11). Departure from expectation is too great to be attributed to chance ($X^2 = 22.175$; $N = 10$; $P < 2\%$). Therefore the assumption must be wrong.

Taussig performed iliac lymphadenectomy in 175 stage 2 cases and found metastases in 27 per cent. He noted a reduction in their incidence as the dosage of preoperative roentgen therapy was increased. His first 70 cases showed definitely superior results when compared with cases in which treatment was by radiation alone during the same period. But with improvements in radiation therapy the advantage has not been maintained in the cases reported later by Emmert and Clarke.

In Morton's cases in which lymphadenectomy was done metastatic nodes were found in 11 of 28 patients who had no roentgen therapy prior to operation, and in 4 of 35 patients who had preoperative roentgen therapy, despite the fact that the latter had clinically more advanced lesions. The difference is statistically significant ($X^2 = 6.65$; $P = 1\%$); consequently the preliminary irradiation has produced a definite effect, and it must be concluded that some of the metastases have been destroyed.

Future in Early Cases.—Hultberg, Brenier, and Meigs have emphasized that early cases (clinical stage 1, at least) should have the benefit of a hysterectomy to improve the salvage. The incidence of recurrences after irradiation is said to be unduly high, and attention has been called to the presence of apparently viable cancer cells in about one fourth of the cases in which hysterectomy has been done after radium therapy. This observation must depend to a certain extent on the completeness of treatment, but is difficult to interpret in any event. The presence of apparently viable cancer cells is no proof of failure of radiation, since the subsequent behavior of such cells is unknown. The only valid manner of testing the efficacy of treatment is by the five year results. Accordingly, we have made an analysis in table 12 of the results obtained with three plans of treatment in 1,063 stage 1 cases. The possible influence of differences in classification can be excluded, since only cases treated in the same institution over the same period of years are considered. The series have been segregated into two groups, because the salvage for each method of treatment in group A is not consistent with the corresponding one in group B. Whether the groups are considered separately or together, the results of radiation therapy alone and those of the combined treatment do not differ significantly. On the other hand, the salvage in the surgical cases is significantly lower than that obtained with either one of the other two methods. While the routine performance of hysterectomy thus appears to exert no definite improvement in the results, there is no doubt that many lives could be saved if it were employed promptly in technically and clinically operable cases whenever the immediate effects of radiation prove unsatisfactory. Serial biopsies will enable us to make a more dependable evaluation for this purpose than was the case formerly, when we had to rely on clinical findings.

TABLE 12.—*Comparative Results of Surgical Treatment and Radiation, Separately and Combined, in the Treatment of Stage 1 Cases, Same Institution, Same Period of Years**

		Surgical Treatment		Radiation		Combined Treatment		Total	
		No.	%	No.	%	No.	%	No.	%
Group A									
1936	Chydenius	8	38	4	100	3	100	15	67
1938	Dunnett	24	42			46	57	70	51
1938	Martius (Erichsen)	41	59	39	58			80	58
1943	Jones and Jones	36	42	87	58			123	53
	Total	109	48	130	58	49	59	288	55
Group B									
1936	Finkelstein	29	52	10	60	21	71	60	60
1937	Schroeder	18	72	4	75			22	73
1942	Martius and Kepp			221		54	69	75	60
1942	Weller	7	71	22	68	32	75	61	71
1942	Knox and Wolfrom	13	85	20	90	67	87	100	83
1943	Stoeckel (Lautenschlaeger)	7	57	11	82	46	76	64	75
1944	Schlinck and Chapman			1		16	81	17	82
1944	Taussig (Emmert & Clarke)	41	81	27	59			68	72
1945	Smith and Dresser (1924-1938)	30	63	206	73	35	54	271	69
1938	Garcia and Menville			46	80	11	91	57	86
	Total	145	69	368	73	262	73	775	72
				$\chi = 2.897$					
				$P < 2\%$					
Totals for Both Groups		254	60	498	69	311	71	1063	68
						$\chi = 1.348$			
						$P > 10\%$			

*The material is separated into two groups because tests of significance show lack of homogeneity within columns when all elements are considered together. Mean salvage discrepancies between columns are tested by Student's distribution, but only two are indicated in the table: Comparison between radiation and combined treatment in the entire material, and between surgical therapy and radiation in group B.

COMMENT

The foregoing analysis indicates that "elective therapy," the complementary use of surgical treatment and radiation, and radiation alone yield equal absolute salvage, on an average, 32 per cent, at five years. Preference for either must depend on the quality of the skill available.

With scrupulous care in technical details the primary mortality and morbidity and the late sequels of either method can be reduced to a satisfactorily low level. Since this is a lethal disease, control of which requires drastic measures, a demand for complete safety is unreasonable.

The risk of failure from inadequate treatment is far more serious than the risk of injury from proper treatment. Hence a small proportion of undesirable sequels must be accepted as the price of effectiveness.

Of the two methods of treatment surgical therapy may be said to have reached the zenith of its perfection. Its best results become apparent when cases are carefully selected. Hence its influence on the absolute salvage is dependent on the composition of the material. On the other hand radiation therapy, while exhibiting the same limitations to a lesser extent, is nevertheless capable of further improvement. This need not wait for the discovery of new principles of treatment, but will issue from the general adoption of the methods shown to possess greatest merit. It must be acknowledged that efficiency in radiation therapy has lagged behind efficiency in surgical therapy. There has been an unfortunate reluctance to profit by the experience of others. We often adhere to deficient technics as a tribute to tradition or as an obligation to expediency. Contrariwise, novel departures from established practice have been undertaken as an exercise in originality with little regard for the consequences. While the trial of new methods usually leads to progress, the desire for improvement must not be allowed to sacrifice advantages already won. Testing new plans of radiation requires special caution, since injuries may not become apparent till months or years have elapsed. Awareness of the intangible factors in radiation therapy made Zweifel remark that proficiency was difficult to acquire. Much of the dissatisfaction recently expressed arises from an unwillingness to peer beyond the deceptive superficial simplicity of the method.

An analysis of the technics of radiation therapy is not possible here, but two certainly satisfy the requirements of effectiveness and safety: the Regaud and the Forsell technics of radium therapy, supplemented by external roentgen or teleradium radiation, using small fields (Paterson, Martius, Silverstone and others, Walker and Taylor). The value of these methods is further enhanced by precalculation of the tissue dose and, according to Glucksmann, by the study of serial biopsies during treatment. More careful appraisal of the individual patient, full use of supportive measures and the suppression of infection and of other obstacles to complete treatment will substantially improve the salvage.

If the worth of a method of treatment is to be judged by universality of scope, low primary risk, relative freedom from disabling complications, unsurpassed absolute salvage, permanency of control and potentialities for improvement, then review of the factual evidence establishes radiation therapy as the treatment of choice for carcinoma of the cervix. The irreplaceable value of surgical therapy today lies in its power to cure in those clinically and technically operable cases that yet remain biologically unsuitable for control by radiation therapy.

SUMMARY

In an analysis of the factual evidence on surgical and radiation therapy for carcinoma of the cervix it is shown that radiation alone and "elective therapy" yield equal absolute salvage—on an average, 32 per cent at five years. The factors that influence control are discussed. Preference for radiation therapy is expressed. It is recommended that the Forsell or the Regaud technic of radium therapy be employed with external roentgen or teleradium therapy through small fields. It is proposed that with precalculation of the tissue dose and the performance of serial biopsies truly refractory cases will be recognized. For such cases prompt resort to radical surgical treatment is urged.

ABSTRACT OF DISCUSSION

DR. KARL H. MARTZLOFF, Portland, Ore.: It is important to realise that surgery and radiology are not competing elements in the treatment of cervical cancer. They should be used either singly or in combination according to the merits of the individual patient's problem. Operation is indicated when the neoplasm is refractory to radiation. However, any one who again advocates a more general application of the radical abdominal operation with its formerly unsavory reputation and in the face of the apparent excellent experience obtained with radiation therapy faces a serious responsibility. Nevertheless, the proposal is made to utilize more generally the radical operation as a curative procedure. To justify this one is obligated to answer some pertinent questions. First, is radiation therapy falling short in such a way that operation theoretically might prove more effective in patients suitable for surgical treatment? Next, can the operation be done with a hazard comparable to or slightly greater than that following adequate radiation therapy? Will the anticipated increased salvage give an expectancy of cure well above that ordinarily obtained by radiation therapy in a similar stage of the disease? The first query is answered by the observation that cervical cancers which have healed after apparent adequate radiation may show identifiable cancer cells in one fourth to one fifth of the operatively removed specimens. Corroborative of this is the clinical remanifestation of cancer in previously healed and apparently adequately radiated cervices about which the radiologic literature is strangely silent. Personal observation, a few reports by critical workers and personal correspondence reveal that among patients in clinical stages 1 and 2 and also possibly some stage 3 patients who have received complete courses of radiation therapy, from 15 to 50 per cent of those who die succumb to recurrence in the previously radiated cervix or proximal part of the vagina. Dr. Garcia has mentioned the lessened mortality that now exists with the radical surgical procedure. It is obvious that with proper therapy,

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the mortality from a completely radical operation is less than 4 per cent. Schlink and Chapman reported a 3.5 per cent mortality and 62.7 per cent five year cures among stage 1, 2 and 3 patients who were given preoperative radiation. Meigs and myself have had an operative mortality under 2 per cent. In view of the foregoing it appears desirable to operate on any patient with cancer of the cervix if she presents no general or local contraindication for radical surgical treatment. Thereby a cervix and vaginal cuff are removed which under radiation therapy might show a fatal remanifestation of the disease. This, as has been indicated, far exceeds the mortality of a properly performed operation.

DR. J. HEYMAN, Stockholm, Sweden: It would be wise to define what is meant by combined surgical and radium therapy. Some want to apply surgery as a prophylactic method to avoid local recurrences. If this is what is meant by combined surgical and radium therapy, then those who wish to use this therapy have to tell us on what patients we should operate. To me it is obvious that there are only two ways in which to proceed: either not to wait for the primary results of radium therapy but to operate on all patients who after preoperative irradiation are considered operable, or to await the result of primary radium therapy and to operate on all patients clinically cured. I cannot see any other method by which one can define on what patients one wishes to operate. Having analyzed our large series of cases from these two points of view, I have shown in two papers published some years ago that my associates and I could not expect to improve the results which we have gained by radium therapy alone by applying either of these two methods. Another group who make claims for surgical treatment want to operate in early cases. That is to me no problem in the treatment of cancer of the uterus, because we know that we can cure 65 to 80 per cent of our patients in the stage 1 group. Perhaps operation could give us better results, but the difference would have no effect of any importance on the absolute cure rate. I also consider that it would be advisable if those speaking of classification would tell us what classification they use. I should like to emphasize that by mentioning the League of Nations classification one may mean two quite different things. The League of Nations classification started in 1929. After about seven years of experience, we had to change that classification and propose a second scheme. These two classifications are different, and the differences are worth noticing. Today the League of Nations classification will include in stage 2 all cases with involvement of the upper two thirds of the vagina and parametrium, whereas in stage 3 only those cases are included in which the lower third of the vagina is involved and the parametrium to such an extent that the lateral pelvic wall is involved. That means that patients allocated to group 3 cannot be operated on and the majority of patients referred to as stage 2 can also not be operated on. There is a confusion today among the radiotherapists due to the fact that many of them are of the opinion that the only thing worth while is a method. That is not so, gentlemen! In addition to having a method of treatment it is necessary to have sufficient experience with the method which one uses. One can use either this method or that, and one will get good results when one has acquired sufficient experience. It is a bad way to change from one method to another and think that one will get results and not try to acquire sufficient experience. If every one sticks to the method to which he is accustomed and then we come together and compare results, we will find something.

TREATMENT OF MIGRAINE WITH HISTAMINE

Review of One Hundred and Forty-Four Cases

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Histamine has been reported to have a prophylactic and a curative effect on migraine.[1] This drug has been used in the treatment of migraine at the Mayo Clinic since 1937. We are reporting the results of treatment in an attempt to evaluate histamine therapy in the clinical management of migraine.

CRITERIA

The majority of physicians who have carefully observed the syndrome of migraine agree that five factors are fundamental to that syndrome. These factors are: (1) periodicity, (2) cephalalgia, (3) gastrointestinal dysfunction, (4) cortical disturbance and (5) a familial history of migraine. It is generally recognized that all five factors are not necessarily present in any 1 case at all times, although many physicians would not hesitate to classify as migraine certain conditions in which all five factors never have been present. For this study, only those cases were selected in which both periodicity and cephalalgia were present in addition to any one or more of the remaining factors.

The cases included in this study have been divided into two groups: typical and atypical migraine. By "typical migraine" is meant periodic cephalalgia which is associated with any two or more of the following three factors: (1) gastrointestinal dysfunction, (2) cortical disturbance or (3) a familial history of migraine. By "atypical migraine" is meant periodic cephalalgia associated with any one of the three factors.

The term "periodic" is used to indicate that attacks recur at relatively equal intervals, over a prolonged period. The more pathognomonic feature of the periods is the apparent good health of the patient in the intervals between attacks.

"Cephalalgia" means headache. The location of the headache, or the site of greatest pain, need not always be the same in a given patient. It may be quadrantal, hemicranial or generalized.

"Gastrointestinal dysfunction" refers to nausea, vomiting, constipation, diarrhea or abdominal pain arising in the gastrointestinal tract. The term may include any one or more of these manifestations.

1. (a) Butler, S., and Thomas, W. A.: Intravenous Histamine in the Treatment of Migraine: Preliminary Observations, J. A. M. A. 128:173-175 (May 19) 1945. (b) Thomas, W. A., and Butler, S.: Treatment of Migraine with Intravenous Histamine, Am. J. Med. 1:39-44 (July) 1946. (c) Horton, B. T., and Macy, D., Jr.: Treatment of Headache, M. Clin. North America 30:811-831 (July) 1946. (d) Thomas, W. A., and Butler, S.: Intravenous Histamine in Treatment of Migraine, Bull. New York Acad. Med. 22:125-136 (March) 1946.

"Cortical disturbance" refers to transient psychic disturbances, scotomas, paresis or paralysis, or paresthesias which can be accounted for on the basis of localized cortical discharge.

A familial history of headache was not considered synonymous with a familial history of migraine. The same criteria were used for inclusion of migraine in the familial history as for establishment of the diagnosis in each case accepted for analysis and study.

By use of the criteria outlined, it is possible to exclude from the class, migraine, other types of primary vasodilating headache, such as histaminic cephalalgia. The exclusion of histaminic cephalalgia is essential, since histamine is specific in the treatment of that type of headache[2] and inclusion of histaminic cephalalgia in the present statistics would obscure the point at issue. These criteria also exclude the purely psychogenic and nervous tension types of headache.

The element of nervous tension is not always easy to determine, and may be a stumbling block for many physicians in interpretation of the problem. It is often an integral part of the syndrome of migraine. The frequency and severity of the attack of migraine may be determined by the element of nervous tension. It is important to realize this fact when an attempt is made to evaluate the therapeutic agents employed in treatment. Otherwise, erroneous conclusions will be drawn.

In migraine we feel that the pain is vascular in origin, and that there are three phases of the condition to consider.

The first is the vasoconstricting phase. This accounts for scotomas and cortical manifestations. Pain is not a factor of this phase—vasoconstriction, in itself, does not give rise to pain. A vasodilating agent may abort the attack if it is administered during the period of vasoconstriction.

The second is the vasodilating phase. The vasodilation is the immediate cause of the pain. Vasoconstricting agents, such as ergotamine tartrate and dihydroergotamine, if administered in appropriate doses early in this phase, will abort the majority of attacks.

The third is the edema phase. This naturally follows if the vasodilatation persists for any length of time.

It is well to keep these thoughts in mind when the attempt is made to evaluate a given therapeutic procedure.

How does histamine act in such a syndrome? The object of this report is to present a statistical analysis of 144 migrainous persons who have been treated with histamine at the Mayo Clinic since 1937. The mechanism and rationale of the action of histamine and various other aspects of the problem will be discussed in later publications.

2. Horton, B. T.; MacLean, A. R., and Craig, W. McK.: New Syndrome of Vascular Headache; Results of Treatment with Histamine Preliminary Report, Proc. Staff Meet., Mayo Clin. 14: 257-260 (April 26) 1939. Horton, B. T.: The Use of Histamine in the Treatment of Specific Types of Headaches. J. A. M. A. 116: 377-383 (Feb. 1) 1941.

MATERIALS AND METHODS

Series 1.—Two series of cases are being presented. The first series includes 124 migrainous patients seen at the Mayo Clinic between January 1937 and May 1945. These patients were treated with histamine and histamine only, in an endeavor to alleviate their symptoms. Histamine was administered by the subcutaneous route, the intravenous route or both routes.

Subcutaneous Administration: In subcutaneous administration a solution containing 0.275 mg. of histamine phosphate per cubic centimeter was used. This solution is equivalent to 0.1 mg. of histamine base per cubic centimeter. The initial dose was 0.1 cc. of the solution. Succeeding doses were increased by 0.05 cc. of the solution. Medication was given twice daily. In the event of the slightest facial flush, headache or subjective discomfort of any type, the dose was decreased by 50 per cent and the program was continued as before. The maximal single dose was 1.0 cc. of the solution. The final dose was the least amount of the drug which would maintain the patient free from migrainous symptoms obtained at any point during treatment. This dose was also the maintenance dose, when maintenance therapy was used. After the maintenance dose had been determined, the patient was dismissed. Administration of the maintenance dose was continued once daily for two weeks, then once every other day for six weeks, and twice weekly indefinitely. This schedule was modified, as seemed necessary, to meet each person's needs.

Intravenous Administration: Two and seventy-five hundredths milligrams of histamine phosphate was added to 250 cc. of isotonic solution of sodium chloride, and the solution was administered intravenously by the drip method, usually for a period of one and a half hours, once daily, in amounts as tolerated by the patient without causing a reaction to the drug. From 0.1 to 1.0 mg. of histamine base was received by the patients with each infusion, depending on the rate at which the solution was administered. Treatment was continued until the maximal therapeutic response for the particular patient appeared to have been obtained, the average period of treatment being two weeks.

Combined Intravenous and Subcutaneous Administration: A few patients treated by the intravenous administration of histamine showed such prompt recurrence of symptoms on cessation of therapy that it was necessary to continue the administration of histamine by the subcutaneous route. Cases in which both methods of therapy were used constitute the "combined" group. When the route of administration of the drug was changed, the dose was determined empirically. In retrospect, it is seen that the migrainous patient tolerates approximately ten times more histamine base when it is administered intravenously than when it is administered subcutaneously.

The patients treated by the combined method were dismissed with the same instructions as those given to the patients treated by the histamine desensitization schedule alone.

Total individual doses during the period of treatment varied from 0.20 to 6.29 mg. of histamine base when the subcutaneous method of therapy was employed; from 0.44 to 14.02 mg. of histamine base when the intravenous method of therapy was used, and from 0.91 to 7.74 mg. of histamine base when the combined method of therapy was carried out. Irrespective of the route of administration of the drug, the great majority (111) of the patients received a total dose of less than 5 mg. of histamine base.

Series 2.—This series consists of a special group of 20 patients treated during June, July, August and September 1945. Treatment of this group was undertaken to see whether we could duplicate the results of Butler and Thomas.

The method outlined by Butler and Thomas[1ab] is as follows: A 1:500,000 dilution of histamine base in isotonic solution of sodium chloride is employed. One milligram of histamine base (500 cc. of the solution) is administered intravenously over a four to eight hour period every other day, for four to eight doses. Epinephrine or ascorbic acid is used to control headache or allergic manifestations occurring during the infusion. "Heartburn" is relieved by the administration of alkaline powders.

Epinephrine and ascorbic acid are two naturally occurring antihistamine substances. Clinically, they are effective histamine antagonists. It has not yet been demonstrated how these substances neutralize the histamine effects, whether they neutralize all the histamine effects or what the quantitative relationships are for such neutralizations. For these reasons, neither substance was administered to any patient in series 2 concomitantly with histamine. Reactions were controlled by modification of the rate of administration of the drug, the total dose for the day or both.

Intravenous Administration: Patients in series 2 received by infusion a 1:500,000 dilution of histamine base in isotonic solution of sodium chloride. The initial dose tolerated by the patients varied from 0.03 to 0.07 mg. of histamine base. The maximal single dose was 1.1 mg. of histamine base. All but 1 of the patients received each treatment in a period varying from one and a half to three hours. Patients were treated every day except Sunday. Treatment was continued until the maximal therapeutic effect for the given patient appeared to have been obtained.

Combined Form of Administration: It had been intended to administer histamine by the intravenous route only in series 2. In 8 cases, the results of intravenous administration were either so unsatisfactory or so transient that subcutaneous administration of histamine also was tried. The same schedule of doses was used as in series 1, except that the initial dose varied from 0.005 to 0.035 mg. of histamine base.

The total individual doses during the period of treatment in series 2 varied from 0.20 to 8.40 mg. of histamine base when the intravenous method of therapy was employed, and from 1.34 to 13.80 mg. of histamine base when the combined method of therapy was used. Thirteen patients received a total dose of less than 5 mg. of histamine base. Three patients received a total dose of more than 10 mg. of histamine base.

RESULTS

Results Presented According to Method of Administration.—Response to histamine therapy has been gaged on the basis of a comparison of frequency, intensity and duration of attacks before and after treatment. The results are reported in four groups in which the response of the patient was graded: none to 25 per cent; 25 to 50 per cent; 50 to 75 per cent, and 75 to 100 per cent. This grouping represents improvement during supervised treatment of the patients at the clinic. The fewest failures and the greatest percentage of unquestionable improvements (75 to 100 per cent improvement) occurred among the patients receiving histamine by both the subcutaneous and the intravenous routes.

When one route of administration alone was used, a greater percentage of patients were benefited by subcutaneous therapy than by intravenous therapy.

There is a group of patients showing less than 50 per cent improvement after intravenous therapy whose degree of improvement seems to increase above 50 per cent when combined therapy is employed. Subcutaneous administration of histamine appears to be effective in a wider variety of cases of migraine than is intravenous administration.

Thirty-three per cent of patients did not respond to histamine administered either subcutaneously or intravenously. Twenty-two and seven-tenths per cent of patients did not respond to histamine administered by the combined method of therapy (5 cases out of 22). The pattern of improvement during treatment is similar in both series of cases.

Results Presented According to Method of Administration and Type of Migraine.—On the whole, there was a tendency toward fewer failures and a greater percentage of significant improvements among patients who had atypical migraine than among patients who had typical migraine, irrespective of the route of administration of histamine.

Significant improvement among persons with typical migraine occurred more frequently during the combined method of therapy than during either subcutaneous or intravenous therapy alone.

Of the 124 patients treated in series 1, 41 were judged to have insignificant (none to 25 per cent) improvement during the period of

supervised treatment. Twenty-five to 100 per cent improvement occurred in 83 patients. Adequate follow-up data were available concerning 71 of these 83 patients. In series 2, 5 patients were judged to have insignificant improvement during the period of supervised treatment. Of the remaining 15 patients, adequate follow-up data were obtained from 14.

Recurrence Presented According to Method of Administration.—In series 1, data on recurrence were compiled from information volunteered by the patients. The majority of patients did not spontaneously report recurrences until such attacks again had interfered with their daily routine. In series 2, a a questionnaire was sent to all patients, and the first migrainous manifestations, however mild, were considered to be a recurrence of the syndrome.

A third to two thirds of the patients had recurrences within one month of dismissal, irrespective of the route of administration of histamine.

Of those attacks of migraine which recurred within one month, the fewest followed intravenous therapy, and the greatest number followed the combined method of therapy. Careful study of the latter cases showed that the majority of these patients had discontinued injections of histamine of their own accord, within the first month after dismissal. Apparently, they had been lulled into a false sense of security by their response during treatment.

Of the 5 patients in series 2 whose migraine did not recur within one month, 2 had been treated by the combined method of administration and 1 employed histamine subcutaneously at home. The migraine of the remaining patients in series 2 recurred in two and three months, respectively, following intravenous therapy.

Institution of subcutaneous histamine therapy after recurrence of the migraine syndrome has subsequently relieved, in whole or in part, 3 patients in series 2 who received only intravenous therapy while at the clinic.

The only patients for whom a markedly sustained effect (up to three years' duration) was obtained were patients in series 1, treated by the subcutaneous method. The duration of freedom from migrainous attacks parallels rather exactly the duration of administration of adequate maintenance doses of histamine. Patients free of symptoms after one year or more were still taking histamine subcutaneously once daily or every other day.

Recurrence Presented According to Method of Administration and Type of Migraine.—In series 1, irrespective of the route of administration of histamine, typical migraine recurred within three months in the majority of patients, whereas atypical migraine tended not to recur until three to six months had passed. The two patients with atypical migraine in series 2 experienced recurrence within one month.

COMMENT

Evaluation of the treatment of migraine is difficult. The results are not objectively measurable. We are dependent on the statements of the patient, both in making the diagnosis and in gaging the effects of therapy.

The frequent coexistence of other types of cephalalgia in a migrainous person is a difficulty more apparent than real. The migrainous person is peculiarly liable to headache, but if the criteria originally used for the diagnosis of migraine are kept in mind, it is possible to follow the transitional forms of migraine, occurring either spontaneously or during therapy, without being confused by coexisting cephalalgias. Because migraine is a syndrome rather than merely a cephalalgia, this is true even as individual components of the syndrome disappear.

Certain points in the present study deserve special comment. The statistical method is obviously limited when it is applied to so subjective a phenomenon as migraine. It should be emphasized that our choice of patients for analysis and study was rigid. In series 1 (the 124 patients seen at the clinic from 1937 to 1945) we were dependent on the records of these patients as noted by others, who at the time of recording could not have known that the present investigation would be made. Consequently, cases have been excluded from our analysis which additional information might have led us to include. Similarly, in some cases a condition which we classified on the basis of available data as "atypical migraine" may in reality have been typical migraine. We are certain that we have included no nonmigrainous cephalalgias; it is possible, however, that in some instances less severe migraine has been excluded because of lack of complete data.

The majority of patients treated in these two series had more than one type of cephalalgia. The usual concomitant was tension headache. Five per cent of our patients previously had become addicted to the use of opiates, which, in themselves, may cause headache. We should like to say that morphine and all habit-forming drugs have absolutely no place in the treatment of migraine. Although we have reported only the migrainous cephalalgia in these cases, the coexistence of another type of headache lowers the threshold for migrainous attacks and hence increases resistance to therapeutic measures.

Because the majority of our patients came from a long distance and had to stay away from home two weeks or more in order to undergo treatment, it has occurred to us that we might have seen chiefly more severe migrainous cephalalgias. To a certain extent, this probably has been true.

With these points in mind, we may turn to a comparison of our figures with others in the literature. The only detailed reports on the treatment of migraine with histamine are those

of Butler and Thomas.[3] These authors administered histamine by both the intravenous and the combined routes; in addition, they used a combination of histamine administered intravenously and histamine-azoprotein[4] ("hapamine" administered subcutaneously. In a series of 75 cases, 88 per cent of the patients experienced partial or total relief of their migrainous cephalalgias. Forty-five per cent of the patients experiencing relief had no recurrence from eight months to two years after treatment. Only 16 of the patients reported on by Butler and Thomas received either histamine or "hapamine" subcutaneously.

These figures are significantly different from ours. When the several points enumerated herein are considered, it is seen that differences in response of the patients during treatment may be more apparent than real. However, it is more difficult to reconcile the two groups of figures on recurrence. The only patients in our series whose migraine eventually did not recur were still taking histamine subcutaneously. In series 2, in which the follow-up study was most complete, 19 or 20 patients have had recurrences, and the twentieth did not report. It has been our experience that although recurrent attacks may be minor at first, they ultimately tend to return to the severity which prevailed before treatment unless more histamine is administered. This apparently has not been true in the cases reported by Butler and Thomas.

Can we attribute the differences in figures on recurrence to variations in technic of therapy in the two groups of cases? We used neither epinephrine nor ascorbic acid concomitantly with histamine, and although our total doses were as large as, or larger than, those of Butler and Thomas, our over-all period of treatment usually was longer. In other words, is the effectiveness of treatment proportional to the size of the total dose of histamine base per unit of time, irrespective of concomitant neutralization of the overt effects of histamine with antihistamine substances? This is a theoretic possibility which deserves consideration.

SUMMARY AND CONCLUSIONS

Records of 144 migrainous patients treated with histamine alone at the clinic between the years 1937 and 1945 have been reviewed. The migraine syndrome in 23 to 33 per cent of the patients was unchanged after histamine therapy, irrespective of the route of administration of the drug. Intravenous administration of the drug was found to be the least effective method of histamine therapy in the treatment of migraine. The syndrome of 33 to 50 per cent of patients with typical migraine and that of 40 to 66 per cent of patients with atypical migraine showed significant improvement during the period of treatment by this method. The subcutaneous administration of histamine was found to be effective in a wider variety of cases of migraine than was the intravenous administration of histamine. Approximately 60 per cent of migrainous patients, irrespective of the type of migraine, showed significant improvement during the period of treatment by this method. The administration of histamine by both the intravenous and the subcutaneous route was found to be the most effective method of histamine therapy in the treatment of migraine. Seventy to 85 per cent of patients with typical migraine and 75 to 100 per cent of patients with atypical migraine showed significant improvement during the period of treatment by this method.

Of the 88 patients who exhibited improvement during the period of treatment and concerning whom follow-up data were complete, 85 experienced a recurrence of migrainous attacks when histamine therapy was decreased below an individual critical level or was stopped entirely. The 3 patients whose migrainous attacks did not recur were still taking histamine at the time of their reports. A tendency was noted for typical migraine to be more refractory to treatment with histamine and to recur sooner after such treatment than atypical migraine.

There appeared to be no constant relationship between the total dose of histamine base and the degree or duration of abatement of the migraine syndrome. There appeared to be no constant relationship between the size of single tolerated doses of histamine base and the recurrence of a migrainous attack. It was found that migrainous patients, in general, tolerate ten times more histamine base in a single dose administered by the intravenous route than in a single dose administered by the subcutaneous route. In migrainous patients there appeared to be a qualitative as well as a quantitative difference between the effects of histamine administered intravenously and the effects of histamine administered subcutaneously.

The use of histamine may prevent some attacks of migraine in some cases. The duration of such an effect seems to parallel the duration of administration of adequate doses of the drug. Adequate dosage varies with the individual patient

Although histamine was not found to be either a specific or a truly curative agent in the migraine syndrome, until such an agent appears, histamine will continue to have a place among the prophylactic measures of value in the clinical management of the migrainous patient.

3. Butler and Thomas, 1a Thomas and Butler, Ibd
4. Butler, S.: Personal communication to the author.

V 19

POTENTIATION OF PRESSOR ACTION OF EPHINEPHRINE BY TETRAETHYL AMMONIUM

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In a recent note in THE JOURNAL, Page and Taylor[1] warned against the use of epinephrine in vascular collapse induced by overdosage of, or unusual sensitivity to, tetraethyl ammonium. They observed that tetraethyl ammonium potentiates the pressor action of epinephrine and of angiotonin and postulated that this potentiation may be due to an action on the enzyme systems which destroy these agents or to an "explosive manifestation of sensitization of denervation." There is no doubt that tetraethyl ammonium is capable of potentiating the responses to pressor drugs; it also potentiates responses to depressor drugs. It is necessary, however, to point out the difference between intravenous administration of epinephrine in dogs and subcutaneous administration in human subjects and also to suggest a more likely explanation of the mechanism of potentiation.

When epinephrine is injected intravenously in small doses, the dog under anesthesia responds with a fall of arterial pressure. When larger doses are administered, arterial pressure rises and the buffer reflexes are called into play in an effort to prevent the pressure change. The compensatory mechanisms which are available to combat an acute rise of blood pressure are (1) reflex slowing of the heart, including increased vagal tone and reduced accelerator tone, (2) increased vasodilator tone (the nature and importance of which is not well defined) and (3) reduction of vasoconstrictor tone. If the dose of epinephrine (or other pressor agent) is sufficiently small, these reflex adjustments, particularly the last named, will quickly restore the normal level of pressure. These reflex mechanisms, however, involve autonomic pathways and will be prevented by any agent which interrupts autonomic impulses. It would be predicted that tetraethyl ammonium would potentiate pressor responses to the same degree, and for the same reasons, as destruction of the medulla and spinal cord.

Compensation for the effects of depressor drugs will set off reflex adjustments of opposite nature: cardioacceleration and increased vasoconstrictor tone. These autonomic mechanisms will likewise be blocked by tetraethyl ammonium, and the depressor responses will be potentiated.

The accompanying figures illustrate that the mechanisms predicted do indeed operate in anesthetized dogs. In figure 1 is shown the effect of epinephrine on arterial pressure and femoral arterial blood flow in a dog, before and during a continuous infusion of tetraethyl ammonium. The first dose of epinephrine, 0.01

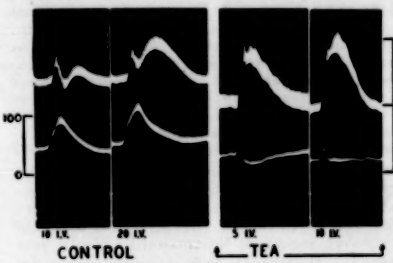

Fig. 1 (dog, 14 kg., sodium barbital anesthesia).—The upper curve shows carotid arterial pressure (scale at right); the lower curve shows femoral arterial blood flow (scale at left in cubic centimeters per minute). Time in 10 second intervals. At signals, epinephrine was given intravenously (total dose in micrograms). The first two segments are of the control period and the second two during infusion of tetraethyl ammonium, 20 mg. per kilogram of body weight per hour.

mg., caused a brief pressor response, for which the animal compensated almost completely. Femoral flow increased, reaching its highest point at a time when the pressure had returned to the initial level; the resistance of the femoral vascular bed was reduced at this point, as the result of reflex inhibition of vasoconstrictor tone. During the infusion of tetraethyl ammonium, epinephrine produced somewhat greater pressor responses. The actual increase and the percentage increase were much greater than in the control period, in part because the pressure rose from a lower base line, but chiefly because the compensatory reflexes had been blocked. After an initial increase in blood flow (a passive response to the increasing pressure before the injected epinephrine reached the femoral vessels), the femoral flow decreased to reach its lowest level at the peak of the pressor response; the resistance of the femoral vascular bed was increased.

Figure 2 illustrates reflex vasoconstriction induced as a result of the depressor response to glyceryl trinitrate. During infusion of tetraethyl ammonium, the depressor action of the vasodilator drug was potentiated, because reflex vasoconstriction in the leg was prevented.

It does not seem necessary, then, to assign the potentiating action of tetraethyl ammonium on the pressor actions of epinephrine and angiotonin to any action on the liver, to inhibition of amine oxidases or to any obscure mechanism of denervation sensitization. The action is completely explained in terms of blockade of compensatory reflexes. It follows that tetraethyl ammonium cannot further potentiate the action of vasoconstrictor drugs when the chief compensatory buffer mechanism, neurogenic vasoconstrictor tone, is already at a minimum. This can be demonstrated in the pithed cat, in which tetraethyl ammonium does

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Supported by a grant from the Life Insurance Medical Research Fund.

1. Page, I. H., and Taylor, H. D.: Sensitization to the Pressor Action of Epinephrine, J.A.M.A., 135: 348, 1947.

not appreciably alter the pressor action of epinephrine.

The blood pressure responses to tetraethyl ammonium suggest that the normal human subject, unlike the dog, has little vasoconstrictor tone in the horizontal position (except to the skin, where blood flow is probably largely under the control of thermoregulatory rather than pressuregulatory centers); the ability of such persons to compensate for epinephrine action is therefore sharply limited, and tetraethyl ammonium will not produce prominent potentiation. In studies of the action of tetraethyl ammonium on the gastrointestinal tract,[2] epinephrine has frequently been injected subcutaneously in doses as high as 1 mg., in subjects under the influence of full clinical doses of tetraethyl ammonium. No untoward effects were observed. Absorption from a subcutaneous injection site is so slow that abnormally hypertensive responses to epinephrine are unlikely.

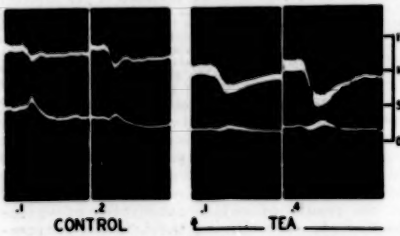

Fig. 2 (same dog as in fig. 1).—At signals, intravenous injections of glyceryl trinitrate were given: 9.1, 9.2, 9.1 and 9.4 mg. total, before and during infusion of tetraethyl ammonium.

Epinephrine should never be given intravenously, with or without tetraethyl ammonium, unless the blood pressure is carefully watched and the dosage adjusted to meet the needs of the patients. In a few subjects who responded to tetraethyl ammonium with severe and prolonged hypotension, the blood pressure was restored to adequate levels and maintained there by the intravenous infusion of epinephrine in dilute concentration. No undesirable hypertensive response occurred, for the infussion rate was, of course, under minute to minute control.[3]

The warning advanced by Page and Taylor should apply to any injection of epinephrine, which should always be given cautiously, and should not imply any special contraindication to or hazard in use of tetraethyl ammonium. Others incurs any special contraindication or hazard.

2. Neligh; Lyons, and other: To be published.
3. Neligh, Hoobler and Lyons: Personal communication to the author.

Assay of Vitamins.—For each of the B-vitamins known to be required for growth of animals, there are thus known several different micro-organisms which also require that vitamin for growth . . . It is from such procedures, used to identify the growth factors essential for the various test organisms, that our present micro biological assay methods have developed.—Snell, Esmond E., *Physiological Reviews*, April 1948.

RESTORATION OF LONG BONE DEFECTS WITH MASSIVE BONE GRAFTS

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Bone grafts have been utilized successfully for approximately forty years. However, it was not until World War I that bone graft surgery actually reached the plane of efficiency to be of great utilization in the repair of bone disease and bone defects secondary to trauma. At the termination of World War I, America found itself with a large number of persons who required repair of the long bones of the extremities in order to rehabilitate these people back to civilian life. The same was true in the European countries. From this experience many of the basic principles of bone graft surgery were developed to such an extent that little has been added mechanically to the technic of bone graft surgery until the beginning of World War II.

In the interval of approximately twenty years numerous men have perfected certain types of gadgets or pieces of equipment which materially helped in some of the finer bits of carpentry that are frequently necessary for good bone graft surgery. No real epochal progress was made nor was any major contribution proposed until World War II began. At this time as a result of the advent of chemotherapy, orthopedic surgeons had a valuable adjunct to their armamentarium for the repair of bone defects. By the use of the sulfonamide drugs and penicillin, reconstruction work could be done in extremities which had previously had suppuration, with a minimal recurrence of infection in the operative area. It is known definitely from experience in civilian life, prior to World War II, that many successful operations have been done on extremities during and after the termination of World War II which prior to the advent of chemotherapy would have definitely been failures.

With the tremendous advance made in mechanical warfare, and with highhvelocity explosives, land mines, booby traps, airplane accidents, jeep accidents and innumerable types of accidents produced by other motor vehicles, there were more casualties during the recent conflict than had ever been known to man.

The Surgeon General's Office deserves the greatest credit for having foreseen the great number of casualties that were to come and for placing in the large general hospitals in the Zone of the Interior men of known orthopedic ability from civilian life to take care of these casualties. In many instances, some of these men remained in one installation for a matter of two, three and four years. Many of their assistants were persons who had remained in the same installation for many months, and frequently the surgical nurses operated every day with the same surgeons, month in and month out. Naturally, with such splendid operative cooperation, these surgical teams did work of a quality and quantity that was previously unknown. Many a man has returned to civilian life after having been injured in World War II owing his entire rehabilitation to the excellent judgment used by the Surgeon General's Office and the fine clinical work by the surgeons in these large installations.

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Read before the Section on Orthopedic Surgery at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

Had it not been for the splendid first aid and emergency treatment that was rendered overseas, a great many of these persons would never have survived the original trauma or, if they had survived, would have lost the extremity and would not have returned to the Zone of the Interior for any form of operative orthopedic reconstruction work except for the fitting of a prosthesis. The medical profession can well be proud of the splendid work done by the men who were in the armed forces.

This paper is on 94 cases in which I personally operated while chief of orthopedic surgery at McGuire General Hospital in Richmond, Va. Four cases were known failures, 3 due to recurrence of infection in the operative field and 1 due to a double fracture of the

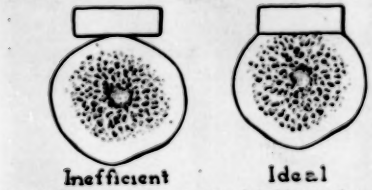

Fig. 1.—The maximum bone contact is desired between the graft and the host bone.

massive bone graft of the fibula, which later required a second tibial graft. Whether some of these repairs which were considered successful broke down in other installations after the patients had been transferred is unknown to me, but up until the time that the last patient had been under direct observation for at least two months prior to transfer, the recurrent infections were only three. Considering the severity of the damage to the soft tissue, the extent of the bone loss and the fact that all of these injuries were compound wounds, the results are formidable.

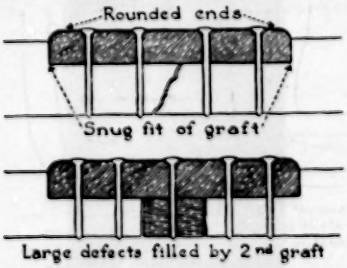

Fig. 2.—A snug-fitting, well mortised bone graft which conforms to the general contour of the injured bone is theoretically and practically most desirable.

PREOPERATIVE REQUIREMENTS

It has long been well known that no form of reconstructive surgical treatment of bone can be performed in the presence of an actual infection. Occasionally men who have attempted this procedure have been successful, but the operative risk is so high that most men have not felt that this is the correct procedure to be undertaken in this type of work. In civilian life, prior to chemotherapy, nine to twelve months were the usual period of time that was permitted to elapse before any bone grafting was performed in a wound that had previously suppurated.

Three preoperative requirements I have felt to be most essential: 1. No drainage should be present in a wound for a minimum of three months prior to the date that bone grafting is performed. 2. Good skin and subcutaneous tissue must cover the operative field where the operative intervention is to be performed; otherwise the bone graft will not survive. In order for

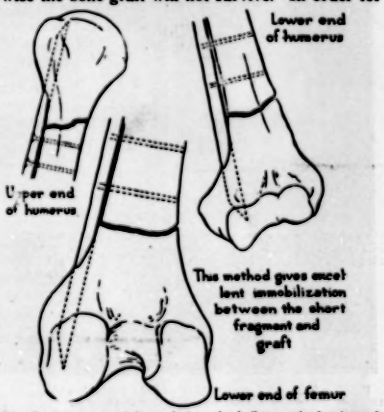

Fig. 3.—In fitting a straight graft into the bulbous end of a bone the tunneling of the condyle for the insertion of the graft is efficient. Bone contact and fixation of one end of the graft are thereby easily achieved.

the graft to become vascularized and throw out callus and become an integral part of the host bone, it is necessary to obtain its blood supply from the surrounding tissues. If this tissue is scarified and the blood supply is poor, the chances that the bone graft will

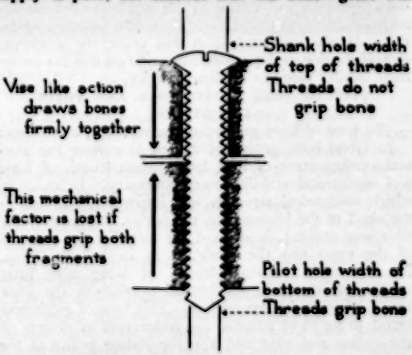

Fig. 4.—In order to obtain the maximum amount of "drawing together" power of a screw, the threads must engage only the distal fragment of bone.

become revascularized are minimal, and in many instances the bone graft terminates in acting as a foreign body. Fortunately, in most general hospitals in the Zone of the Interior plastic surgeons were available, and large defects could be filled with good healthy skin and subcutaneous tissue by means of

either a swinging graft from the surrounding area or a pedicle graft from the opposite extremity or the abdomen. Padgett's dermatome has been a most valuable asset in the covering of granulating wounds, thereby

Fig. 5.—A private first class, injured Feb. 25, 1945, with resulting malunion of radius and loss of bone substance of the ulna.

shortening the period of wound healing. 3. Adequate chemotherapy is most essential, before and after the operation, in order to insure a sterile field at the time of operation. Penicillin was used in amounts of 25,000 units every three hours, and 90 grains (6 Gm.) of sulfadiazine a day was given in divided doses forty-eight hours prior to surgical treatment and for fourteen days postoperatively, until all the sutures were removed and the skin was found to be healed by primary intention. It was my impression that under the screening of sulfadiazine and penicillin these cases did far better than similar cases in civilian practice.

TYPE OF BONE GRAFTS USED AND THEIR INDICATIONS

The type of bone grafts used were three, as follows:

1. Tibial bone grafts were used to restore the general configuration of long bones when length of bone and mechanical stability were necessary. In cases in which mechanical strength was important, such as in the shaft of the humerus or the femur, the crest of the tibia was utilized, in spite of the fact that the removal of the crest had the tendency to weaken the tibia. In cases that required length of bone with little mechanical strength, the central portion of the tibia was used from the flat surface. This type of graft was found to be most suitable for restoration of defects of the radius and ulna and also for sliding grafts of the tibia.

2. Full thickness fibular grafts were used successfully in a number of cases, up to 8 inches (20.3 cm.) in length being used from the central portion of the fibula. In spite of the fact that numerous men have condemned the fibular graft, stating that it is too large a piece of bone to become revascularized, none of my fibular grafts broke down except in 1 case in which gross infection occurred from the sloughing out of the overlying skin. In some cases the fibular graft was used in conjunction with the tibial graft in order to restore a large defect existing in a femur.

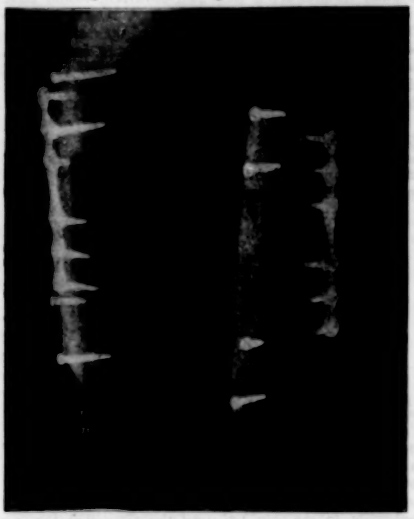

Fig. 6.—Same patient as in figure 5. End result, four and one-half months after operation, after a plating of the radius and a tibial graft to the ulna.

3. Cancellous bone grafts from the wing of the ilium were used when large bone defects had to be filled or when it was felt that more bone was necessary to restore a long defect in addition to fibular or tibial

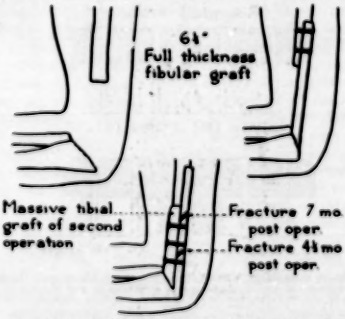

Fig. 7.—A first sergeant, injured June 1, 1944 with loss of 4 inches (10.2 cm.) of humerus, proximal ½ inch (1.3 cm.) of radius and 1½ inches (3.8 cm.) of the ulna.

grafts. These cancellous bone fragments were packed around the bone defect, and it was found that in these cases early callus was produced and a much earlier restoration of healthy bone than with massive cortical bone. However, mechanical stabioity, which is so essential in many cases, was lacking.

In some cases a combination of the three aforemen-

tioned grafts were used, depending on the type of defect that had to be filled and the mechanical stress and strain which the host bone would be subjected to during an active life.

In order to obtain the greatest number of takes in bone grafting, it is most essential to follow a number of

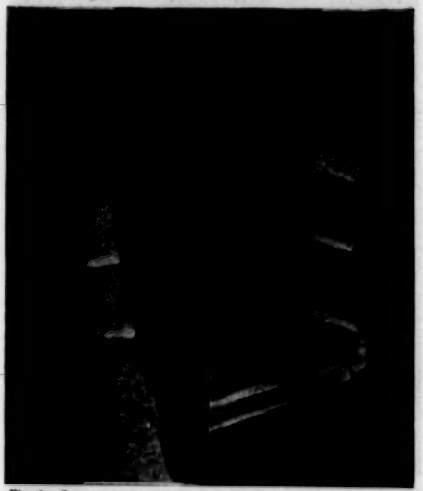

Fig. 8.—Same patient as in figure 7. End result after a double fracture of a full thickness fibular graft, followed later by a tibial graft which successfully stabilized the area. End result fifteen months after the fibular graft, and seven months after the tibial graft.

Fig. 9.—A private first class injured Dec. 2, 1944 with loss of bone substance of femur and a septic arthritis of the knee.

basic principles of carpentry plus the basic physiologic principles of revascularization of tissue. If one hopes to obtain early revascularization of bone, it is most important that the grafted bone be firmly fixed to the host bone so that it has a solid base from which the finer vessels can grow and revascularize the contact surfaces of the bone. In addition, the more fresh bone that is brought in contact with the grafted bone, the better are the chances of a successful take. For this reason it is felt to be a most important point that the grafted bone be fitted into a definite well formed bed that fits the conformation of the graft or that the graft be made to fit the conformation of the bed, so that the sides and base of the graft have the maximum amount of fresh bone contact. For the portion of the graft that lies exteriorly, it is essential that good healthy muscle or subcutaneous tissue be drawn over the graft so that the periphery has an opportunity of becoming

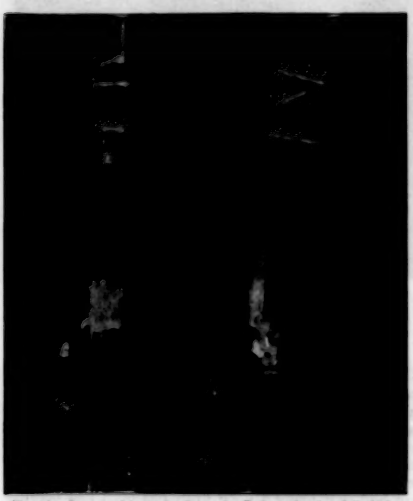

Fig. 10.—Same patient as in figure 9. End result of a full thickness fibular and tibial graft 7 inches (17.8 cm.) long, fourteen months after surgical treatment.

revascularized as well as the central portion of the graft. No form of stability of the graft to the host bone is as efficient as the use of mechanical screws. The Surgeon General's Office did a splendid job of standardizing the metals and type of screws to be used in the armed forces, and these screws were of uniform chemical composition and of uniform thread and diameter size so that once the mechanical side of the problem was standardized, the fixation of screws became simple.

The general conformation of the grafted bone must by necessity tend to reestablish the normal contour of the host bone. By so doing there is the least amount of interference with the overlying muscles and tendons during their action in the locomotion of the extremity. Sharp corners are to be avoided, and bulky masses of bone directly below the skin and subcutaneous tissue are most harmful and do not do well as far as revascularization and viability are concerned.

POSTOPERATIVE CARE

The postoperative period constitutes a most critical phase in this type of surgery. Unless careful postoperative immobilization is instituted, the fracturing

of the graft or the loosening of the screws occurs all too frequently. This spells failure. It is most important that there be firm, adequate immobilization for a sufficient period. Perhaps no form of immobilization

Fig. 11.—A private injured by shrapnel fire with loss of the left leg, lower third of femur. Right leg had loss of 2 inches (5.1) cm.) of tibial substance with intact fibula. A split thickness graft covered the soft tissue defect.

is as satisfactory as plaster of paris. Casts can be molded to the contours of the body and firmer immobilization obtained than by the use of any other form of external fixation.

The period of immobilization is much longer than one is apt to believe at first. For this reason it must be remembered that long immobilization is most important and that many a good graft has been lost because of the overenthusiasm and optimism of the operating surgeon.

Where good carpentry has been utilized in performing bone grafts, practically no extraosseous callus becomes visible. The only sign of a take of the graft is the loss of the margins of the graft and the gradual homogenous appearance between the bed of the graft and the host bone. After a period of time this line of separation completely disappears. It requires a great deal of skill and clinical experience to interpret correctly from the roentgenograms and the clinical observations of the extremity whether the graft has taken well enough so that immobilization can cease. It is far safer to err on the side of prolonged immobilization.

CONCLUSIONS

With the advent of chemotherapy, the results of massive bone grafting are far superior to the results prior to the use of sulfonamide drugs and penicillin. More extensive operative procedures can be undertaken with chances of success than could have been undertaken prior to World War II. In order to obtain the best mechanical advantage for the take of the bone graft, it is most important that the maximum amount of fresh bone be brought in contact with the grafted bone and that a snug fit be made between the bed of the host bone and the graft that is to fit into this area. This firm internal immobilization is best obtained by the use of metal screws. Long immobilization in plaster is most advantageous if one is to avoid the all too frequent complication of loosening of the screws or

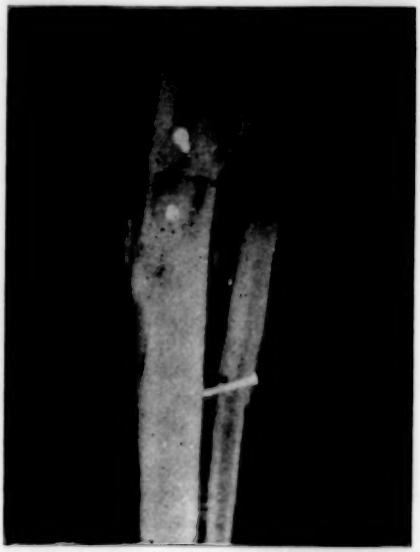

Fig. 12.—Same patient as in figure 11. A 3 inch (7.6 cm.) of fibula was resected and used as an intramedullary bone graft, fixed with two screws to prevent distraction of the freshened tibial fragments. This procedure permitted obliteration of the tibial defect. The dermatome graft was removed, and normal skin and subcutaneous tissue could now be drawn over the bone; the soldier, instead of being 6 feet 3 inches (190.5 cm.) in height was now an even 6 feet (182.9 cm.).

fracturing of the graft. Under no circumstances should a bone graft be placed into scar tissue or covered by skin that does not have a good vascular bed and adequate subcutaneous tissue.

The general conformation of the grafted bone to the host bone is most essential and all sharp corners are to be avoided, as they interfere with the activity of the overlying muscles and tendons and also contribute to the production of excessive scar tissue and unnecessary pain to the patient.

Considering the severity of the wounds and the extensive damage that was produced to the extremities in World War II, the results of bone grafting have been most gratifying.

ABSTRACT OF DISCUSSION

DR. T. C. THOMPSON, New York: There is little to add to the clear and comprehensive presentation given by Dr. Scuderi. A series of 94 cases of bone transplantations with only one refracture and three infections is indeed remarkable. Although some of the credit must be given to sulfonamide drugs and penicillin, the high percentage of excellent results indicates that not only were the technical procedures good but the surgical judgment must have been unusually sound. The treatment of uncomplicated nonunion has become a relatively simple matter and one in which one should obtain almost 100 per cent good results. The treatment of the complicated cases with extensive loss of bone and soft tissue test the patience and ingenuity of

the best surgeon. I put patience first, for, even though one does not need to wait for many months after infection has subsided, it is most desirable that all the parts of the extremity be brought back to as nearly normal conditions as possible before a reconstructive operation is performed. Not only should the skin be good but all remaining muscle power should be completely developed by maximum functional use of the extremity. It is obvious that Dr. Scuderi does not use the same type in all cases. I agree that firm fixation with a large area of contact between the viable bone and the transplant is most desirable. The technic of making the holes larger in the superficial cortex and using screws long enough to engage the opposite cortex is an excellent way to accomplish this. In some of the most difficult cases, the time required to obtain stability in an extremity without danger of refracture can be shortened and risk of losing a badly damaged extremity can be avoided by the use of a simpler method than a massive bone transplant. After extensive loss of the radius there is pronounced radial deviation of the wrist when the ulna is still intact. Full length cannot be obtained with the use of a massive graft and the bone has to be placed in a scarred bed where the circulation is precarious. I have seen many of these patients in whom the procedure has been a complete failure. Even if it is successful, there are usually little pronation and supination of the forearm and the wrist deformity remains, unless the ulna is shortened at the same time. This problem can be simply solved by making a one bone forearm, accepting the fact that pronation and supination cannot be restored. An osteotomy of the ulna just above the wrist and a transplantation of the wrist and hand to a good position on the end of the ulna will give a cosmetically and functionally good forearm, which is strong in a matter of weeks instead of months. The same thing can be done for a large gap in the tibia, which is almost invariably followed by a varus deformity of the ankle and foot. This deformity can be corrected by a complete osteotomy just above the ankle with transplantation of the foot outward beneath the fibula. Union of the fibula to the tibia above the site of the defect can be readily obtained through an incision which is not through the badly scarred site of injury. Cancellous bone can be added if needed. The perfect alinement obtained in this way allows early weight bearing, and solid healing is obtained in much shorter time than when a massive graft has been used. Attempts to perform technically difficult surgical procedures at the wrong time have resulted in a considerable number of failures. Extensive loss of bone is not an indication for amputation, and certainly attempts to repair such loss should not result in amputation.

Dr. Jesse T. Nicholson, Philadelphia: Dr. Scuderi has had an unusual opportunity to observe a big series of long bone defects. He has discussed well an involved subject in the brief time allotted. The outstanding contribution on the use of autogenous bone grafts for nonunion in long bones that evolved from the first world war was written by the Surgeon General, Norman Kirk. In World War II chemotherapy and antibiotics made surgical treatment possible at a much earlier date after injury and usually prevented a flare-up of infection. This advance not only eliminated infection as a cause of nonunion, but resulted in earlier bone grafting, thus preventing the bone atrophy which so frequently complicated the cases of long-standing infection. The other causes of failure also have been minimized with better immobilization methods, improved bed care, technic of obtaining roentgenograms and ability to combat shock with available whole blood and plasma reserve. Other advantages that favored early successful grafts have been the use of split skin graft to cover soft tissue defects, thereby preventing scarring and obtaining rapid wound healing, then the later substitution of full thickness graft to insure adequate coverage for the proposed bone graft. I cannot agree with Dr. Scuderi on the use of the crest of the tibia as a graft. First as a bone graft it must not be relied on for strength of immobilization. As the graft becomes viable and as creeping substitution (so aptly termed by Dr. Phemister) takes place, the supportive value of the graft is gone. Secondly, it has been my misfortune to inherit subjects from whom a tibial crest had been taken for a graft. Frequently they had had a fracture and even a nonunion of the donor area, or else they had to be kept from weight bearing because of danger of fracture. Often this danger persisted even after the host area had united. Dr. Scuderi's points on the fixation of graft are well presented. The value of small cancellous chips for filling in defects or iliac grafts in the bones of the forearm, metacarpals and metatarsals cannot be emphasized too much. More stress might be put on the preservation of the periosteum of the host bone so that it may be closed, or partially closed, over at least the ends of the graft bridging the defect. Immediate and absolute immobilization is necessary after surgical treatment. I would not even put faith in a tibial crest as support for fourteen days after operation. Dr. Scuderi is correct that no definite time for union of a graft can be given. The roentgen examination is always the answer to the question, "Is there union?"

Dr. Carlo S. Scuderi, Chicago: In response to Dr. Thompson's remarks, I wish to state that it never occurred to me that the ulna could be used to replace the shaft of the radius and give a substantially good forearm. It is an idea that I am going to take home with me, and if the opportunity presents itself, I am certainly going to use it. In regard to Dr. Nicholson's remarks, for brevity of the paper, I did not go into the details about the use of massive fibular grafts. If much strength and length of bone is needed tibial grafts are indicated. Cancellous bone grafts are indicated when large defects are to be filled in conjunction with massive bone grafts. Fibular grafts are indicated when long tubular bone replacement is necessary, such as in the radius, ulna and humerus. I am sorry that time did not permit a more extensive discussion of all the points which we hoped to cover.

WHAT CAN ONE DO FOR THE HARD OF HEARING?

A Panel Discussion

FRANCIS L. LEDERER, M.D., Moderator
Chicago

The Moderator: Each one of you is expected to direct pointed questions and discussions. I hope that this will be the culmination of the problem as a result of the studies that have come about through the military services. I believe that this first showing before a public medical audience of a film produced by the Army will serve as a fair introduction and focus your interest on the problem.

FILMS ON REHABILITATION

Dr. Norton Canfield, Veterans Bureau: The film is the end result of a request of the Surgeon General to provide a pictorial history of the rehabilitative program as carried out in the Army during the War. This film was started about a year and a half ago, before the Army units were rearranged and before the unit which is now in operation at the Army was established at Walter Reed Hospital. The film depicts the course through which these men pass during their rehabilitation program, and is an accurate record of what was done.

"FITTING," THE HEARING AID

QUESTION: What procedures are involved in a really satisfactory hearing aid "fitting?"

Miss Eva Thompson, Philadelphia: In a discussion of hearing aids and "selection," "fitting" or "prescription" of hearing aids, it is essential that the hard of hearing patient be the first consideration. The goal in audiologic rehabilitative procedures is to give the handicapped person some means of maintaining comfortable communication in a gregarious world. This is not a simple thing to do and except in the rare case cannot be done by merely "hanging" a hearing aid on the patient.

Medical and Psychosocial Analysis of Patient.—The first consideration in a really satisfactory hearing aid "fitting" is a complete medical and psychosocial analysis of the patient. As

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Presented before the Section on Laryngology, Otology and Rhinology at the Ninety-ninth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

no two persons are alike, it is impossible to know to what degree their hearing loss has influenced their personality. Each in his own way has endeavored to adjust to his hearing loss; some by trying to bluff, and others by becoming introverts. However done, the result is always some form of change in personality. The clinical information necessary is of course derived from as complete an audiologic study as possible, consisting of air conduction and bone conduction audiograms, speech reception tests, tuning fork tests, conversational and whispered voice tests and any special tests which may be indicated. The more tests that are done, the more assurance one has of knowing the actual degree and type of the hearing loss. Each test serves a purpose, but the importance of each must be carefully weighed. Some are merely rough screening tests, and others precision tests. None are completely objective, so that it is impossible to divorce the individual patient from his ears. For example, the audiogram gives a picture of the patient's residual hearing for pure tones. The speech reception test tells what he does with this residual hearing, and this will be reflected in his use of a hearing aid. A thorough otolaryngologic and general physical examination is essential, for no patient should be burdened with a hearing aid if medical or surgical treatment can cure the deafness. There is, however, no contraindication to the use of a hearing aid while therapeutic treatment is being carried out. Helpful information relative to the fitting of a hearing aid is the diagnosis and cause of the deafness and the duration, for this sheds light on the prognosis of the case. In selecting the amount of amplification necessary for the case, this prognosis should be considered. The patient's age and the duration of the hearing loss are of extreme importance in regard to tolerance of amplified sound. An elderly person who has had a hearing loss for a period of years will usually have low tolerance for amplified sounds and will lack the patience and resiliency necessary to learn to listen again. This type of patient often expects the hearing aid to bring back the mental alertness of youth, and when this miracle does not occur he blames the hearing aid. Because of these factors in those cases, often it is better to give less amplification than is indicated by the test picture. This is spoken of as "underfitting," a generally poor practice except in the case in which tolerance for amplified sound is low. The condition of the external canals and tympanic membranes must be known, for it is necessary to take an impression of the external canal in order to make an individually molded ear piece. This is absolutely essential if an air conduction hearing aid is to be used, for no universal ear piece is satisfactory. The impression should never be taken in the presence of mycotic infection, exostoses, active suppurative otitis media or a similar condition which might be a contraindication to the use of an air conduction hearing aid. The presence or absence of tinnitus, vertigo and headaches may also be factors in the patient's adjustment to the use of a hearing aid and, consequently, should be considered in the selection of a suitable aid.

Psychologic Preparation of Patient.—If the hearing loss is greater than 30 decibels in the speech frequency range, audiometrically or as tested by speech reception, a hearing aid should be recommended and the patient advised not only of the advantages but also of the limitations of a hearing aid. All too frequently he believes that an aid is going to be a panacea for all his difficulties and that he need merely overcome the feeling that a hearing aid is a stigma of the infirmity of old age. Hearing aids cannot give the patient completely normal hearing inasmuch as only one ear is being used and difficulties, such as localization of sounds, typical of the unilaterally deafened, must be accepted. Then, too, the hearing aid amplifies all sounds, not just speech, and unless these facts have been clearly explained to the patient before the fitting of the hearing aid he will be confused and disappointed and may even refuse to use an aid. For these reasons the psychologic preparation of the patient is imperative in a really satisfactory fitting of the hearing aid. This can be done by an audiologic specialist, an otologist or a psychologist. Rare indeed is the hearing aid salesman who has had adequate training to play this important role. A general consideration of the patient's vocational, social and economic situation is helpful, as this knowledge may shed light on the degree of the handicap in the patient's daily communicative habits. No patient can be made to use a hearing aid if he does not so desire. Cooperation of the patient must be obtained before a successful fitting can be achieved.

Ear Mold.—The next step is the procurement of a well fitting ear mold for the ear on which the aid is to be worn. The impression for this mold can best be done by the otologist. However, it is accepted practice to have it done by trained technicians. With the use of the new acrylic resins it is a fairly simple procedure and lacks the risk that was present with the use of plaster of paris.

Selection of Ear.—If there is an average moderate loss in both ears and the patient can use a telephone with some efficiency the ear not used in telephoning is selected. If there is a disparity between the ears—for example, an average loss in the better ear of 40 to 50 decibels and a loss of 65 or more decibels in the poorer ear—the better ear is selected. The hearing in the aided ear must be above the level of hearing in the better of the two ears, for unless this is accomplished the patient is no better off than he was without the aid.

Testing of Hearing Aids.—The actual testing of hearing aids should be done under carefully controlled conditions which can be kept uniform for all aids tried by the patient. This situation was possible in the service aural rehabilitation centers and can be found in some civilian clinics. It is not present in the salesrooms of the hearing aid companies. The hard of hearing person has an abnormal speech-hearing pattern and consequently needs guidance by a trained specialist in the selection of the best hearing aid for him. Suitable test hearing aids are selected by first deciding the amount of amplification needed, and then whether this amplification should be equal for all frequencies or whether greater emphasis should be placed on the high or the low frequencies. Experience and research work carried out in the service programs and the Harvard University Psychoacoustic Laboratories have shown that for a large majority of patients better speech discrimination is obtained if the frequency emphasis rises approximately 6 decibels per octave. In most of the instruments of modern type this is done by means of a tone control. However, some patients cannot tolerate this type of frequency emphasis. Hearing clinics using a large group of test instruments conform in general to the recommendations of the hearing aid companies. The company's statements can be accepted in regard to the characteristics of the individual models. These test instruments are classified under three main categories. (1) amount of amplification, (2) frequency emphasis and (3) tonal quality. With a knowledge of the degree of the hearing loss and some information about the patient's tolerance for amplified sound, it is a relatively simple matter to determine the amount of amplification needed and whether the test aids to be tried are selected from the minimum gain instruments. The second category is not as simple, for the audiogram gives only an indication of the frequency emphasis needed. Much has been written about selective amplification and "mirroring" an audiogram. Theoretically this can be done, but practically it is impossible with the modern portable hearing aid because of the number of factors which modify the performance of a hearing aid when actually worn by the patient. With the audiogram as a guide, an adjustment is made in the tone control setting, or suitable model instruments with fixed characteristics are selected for testing. The third category, tonal preference, is almost completely unpredictable and is directly related to the psychologic makeup of the patient. The fact must be accepted that the hearing aids of different companies have different tonal quality; for example, some are crisp or sharp, others are mellow, while still others are hollow. It is essential that this quality inherent in the hearing aid be acceptable to the patient, for it is an essential factor in the comfort with which he is able to wear the aid. Only by trying out different makes of hearing aids is it possible to determine the quality that will be acceptable to the individual patient. After the selection of the suitable test aids, some standard method of comparison should be carried out. Ideally there should be a preliminary screening test in quiet and in the presence of noise followed by controlled scientific tests such as the speech reception gain test which gives an absolute figure for the gain obtained in hearing for speech by the use of hearing aids. This

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test can be carried out simply or in elaborate steps using various intensity levels of speech and ambient noise. Only by means of comparative tests of various types carried out in uniformly controlled situations can the hard of hearing person be assured that he has obtained the best possible hearing aid for his particular type of loss. This aid must be comfortable to wear, it must give the patient the optimum in sound discrimination and must give a gain in speech reception of at least 30 decibels except in the case in which the hearing loss is so moderate that less than 30 decibels of gain is sufficient. The average gain obtained by the patients fitted with hearing aids in the Navy's Aural Rehabilitation Program is 36.3 decibels. If these procedures are carried out and the patient has the assurance that he has obtained the best possible hearing aid "fitting," his adjustment to the use of the aid will be much more rapid and—more important—will probably be successful.

WHAT A HEARING AID IS AND DOES

QUESTION: What must I know about modern hearing aids if I am to prescribe them satisfactorily?

MISS THOMPSON: I would question the use of the term "prescribe," but whether one uses this term or "selection" or "fitting" it is essential that one should know what hearing aids do, what they are, how they work and whom they are for. A hearing aid is a miniature public address system, consisting of a microphone that converts sound into electrical energy, an amplifier that increases this electrical energy and a receiver that converts this electrical energy back into acoustic energy at a louder intensity. If this amplification is done equally for all frequencies one says that the system has a flat characteristic or has a flat frequency response up to a specified frequency. Only high fidelity systems are capable of doing this. Hearing aids introduce a considerable degree of frequency distortion; that is, they amplify some frequencies to a greater extent than others. However, this frequency distortion can be changed and controlled by means of tone adjustments. Experience has shown that greater amplification in the speech frequency range than in the low frequencies gives better speech discrimination, and consequently, this feature of hearing aid amplification has been used to advantage. Normal hearing cannot be obtained by the use of a hearing aid, for it is impossible to take an abnormally functioning ear such as is found in the hard of hearing patient, and attempt to compensate for this abnormality by frequency distortion amplification. Two abnormal conditions cannot make a normal condition. However, it is possible to approximate this goal, and that is what is done by the use of hearing aids. The amount of amplification can be adjusted by the volume control, the frequency emphasis by the tone control. The basic parts of a modern vacuum tube are the hearing aid transmitter (microphone and amplifier), two batteries, an A and a B battery, and the receiver. The microphones and receivers may be either crystal or magnetic. The receiver may be air conduction or bone conduction. However, in the Navy's Hearing and Speech Clinic it has been found that in the majority of cases the air conduction receiver is more efficient than the bone conduction receiver; consequently, only a small proportion of the hearing aids issued by the Navy have been of the bone conduction type.

Basic Requirements.—A hearing aid should meet certain basic requirements such as those outlined by the Office of Scientific Research and Development. 1. Power: It must have sufficient power to bring audible sounds to the deafened ear. 2. Tolerability: Sound must be brought to the ear without causing pain, tickle, or serious discomfort. 3 Fidelity: In terms of the patient's ability to interpret sound, the hearing aid should make intelligible any clear connected speech. 4. Wearability: The ear piece must be tolerable to wear, and the instrument as a whole must be portable without unreasonable discomfort and inconvenience. 5. Sensitivity and amplification: The aid must make ordinary speech intelligible at conversational levels. Hearing aids meeting these specifications and also the minimum requirements of the Council on Physical Medicine of the American Medical Association carry the seal of approval of the American Medical Association. Only accepted aids should be recommended by the audiologist. A list of these accepted aids can be obtained by writing Mr. Howard Carter, the Secretary of the Council. Information in regard to the degree of amplification, the frequency emphasis, the construction of the instrument and the design of various individual features of specific instruments can be obtained from the published reports of the Council on Physical Medicine of the American Medical Association. These references may be found in the list of accepted aids, which is revised as new aids are approved. Additional information in regard to the selection of suitable test aids for specific types of hearing losses may be obtained from the hearing aid companies. Thorough familiarity with the accepted makes and models of hearing aids that are to be tried by the patient is necessary to do a completely satisfactory hearing aid fitting. In no other field of medicine would a prosthetic appliance be recommended without a complete understanding of all features of not only the prosthesis but also the individual problems of the case.

PSYCHOGENIC LOSS OF HEARING

QUESTION: What help can I expect of electroacoustic tests in the diagnosis of psychogenic loss of hearing?

MISS THOMPSON: A full discussion of this question would involve not only a detailed description of modern hearing testing technics and apparatus but also a discussion of types of psychogenic deafness. The recognition of the fact that there is a psychogenic component in at least 15 per cent of our hard of hearing patients reflects a comparatively new trend in medical science, a realization that there is probably no such thing as a purely organic disability; every somatic disturbance tends to produce a psychic change. The otologic problem is the same as that found in any other branch of medicine, that is, to determine the extent of the organic lesion and find out if possible how many of the symptoms can be attributed to psychogenic overlay. Again, much as it would simplify the problem, one cannot divorce the patient from his ears and one is forced to consider him an individual and to the best of one's ability try to find out what he is doing with his ears and what his ears are doing with him. For this reason, as in every branch of medical science, tests have been developed to determine as objectively, as accurately and as scientifically as possible the purely physiologic function of the special sense or organ under observation. In the science of audiology this has been difficult, because of the number of variable factors which are involved. The more of these variables that can be controlled in audiologic test situations the more objective will be the findings and the more information gained about the pathology of the ear. This has been the goal of audiologic research. Though the goal has not been attained, many of the classic tests have been adapted to electroacoustic apparatus and new tests have been developed. Modern hearing tests are essential in the diagnosis of an ear condition as first encountered, the condition of the ear during and following treatment and the prognosis of the case. Practically every patient with an ear complaint, unless the condition is external, has some dysfunction of the hearing mechanism. This dysfunction may be reflected in the patient's reactions, and a psychogenic tendency might be recognized and perhaps abated at this stage, provided that the hearing tests are carefully conducted and accurately controlled and an understanding of the psychologic changes which occur in a person with a mild recent hearing loss are recognized by the otologist. If the possibility of these changes occurring is not recognized by the otologist, a psychogenic overlay or some other form of psychogenic hearing loss may develop. The audiometer is considered by all audiologists the basic apparatus for the testing of hearing. No test has been presented to supplant the audiometric test. All other tests are used to supplement it. The newer ones, such as the speech reception test, give additional knowledge in regard to the individual case. Why in 60 to 70 per cent of cases is there such close agreement between the audiogram and the speech reception test and little or no variation on retests? What is the reason for the discrepancy in the other 30 per cent? Because modern electroacoustic equipment is available, it is now possible to find some of the answers by the use of special tests.

Time does not permit a detailed discussion of all the tests which have been used; hence, only those that have been found helpful in the selection and diagnosis of cases involving possible psychogenic deafness will be considered: (1) repeat audiometric tests showing fairly wide discrepancies; (2) repeat speech reception tests given in conjunction with the audiogram showing little or no correlation with the audiogram or with the previous test; (3) bizarre results of bone conduction test whether the test is conducted with tuning forks or the audiometer; (4) conversational voice and whispered voice tests that do not conform to the speech reception test; (5) Lombard test carried out using full spectrum noise carefully calibrated; (6) Stenger test using two perfectly matched earphones, matched in reference to frequency and intensity, and if possible a calibrated attenuator for each earphone, and (7) the Doeffler-Stewart test, perhaps the newest of the tests that have been helpful in the diagnosis of the psychogenic case. This test is based on the masking effect of noise on speech, but here again the type of noise used, the calibration of the special equipment and the technic of giving the test must be thoroughly understood before the results can be used for diagnosis of psychogenic deafness, but this statement can be made about the use of any electroacoustic equipment. **Electroacoustic equipment is not mysterious. Practically all of you drive automobiles and would probably admit that you know little or nothing about mechanics, but you know the purpose of each of the push buttons and the rules and laws of the road. Electroacoustic equipment is not much more intricate provided that one takes time to learn the rules and the laws of the road and respect the push buttons—not only of the equipment but also of the patient with whom one is dealing.**

AUDITORY TRAINING

THE MODERATOR: In 1940, Day estimated that well over 70 per cent of the people who got hold of a hearing aid discarded it. I would like to ask Dr. Baker what is meant by auditory training, and what is needed to accomplish it.

DR. HERBERT KOEPP-BAKER, Chicago: You are accustomed to thinking in terms of deafnesses, of losses, of disability. To have a thoroughly useful auditory rehabilitation program, you must shift about and take the view that you are not so concerned with what the patient has as with what he has left. Auditory training is best defined as that preparation of the living active organism for using most efficiently what he has left.

Preparatory State.—It is divided into three parts. There is a so-called preparatory state or period in which the patient is helped to understand what will be expected of him when he is being measured for a determination of his loss and also what he is going to do with the amount of hearing he has left. There is reason to feel that before a patient is fitted with an aid a psychologic and a physiologic preparation would have utility for a later time, and by that I mean that he ought to come to understand what amplified sound is like. To many of us, it is not a normal experience, and to the deafened person it is probably even less normal. I suggest, therefore, that to provide controlled managed experiences in listening to amplified sound may be of real value to the person who is being fitted ultimately with an amplification device.

Second Stage.—The second stage of auditory training is a preparation that follows three major steps: telling the patient what he needs to know; helping him to get the facts about what he needs to know, and about the instrument and, the third step developing an attitude about its use. One may wonder whether that is auditory training, whether the psychosocial preparation that the patient gets for the use of amplification is auditory training. Indeed it is. We physicians are coming to evaluate much more reasonably the place of the central processes in hearing. Hearing is something more than merely the transmission of acoustic energy through the ear channels into the brain. As we have learned in vision, so we are learning in hearing that a great deal of consequence goes on in the central nervous system of the patient; **hence an auditory training program** concerns itself not only with **reestablishing** the greatest possible utility of the peripheral and middle and central mechanism, but with establishing a whole new attitude toward the act of hearing.

Third Stage.—The third stage in auditory training is helping the patient to become a skilful user of the aid. By that I mean becoming a specialist in being deaf. I should like to point out here that the fundamental attitude that is established, of course, is one that he is deaf and that his hearing aid will do nothing more than to assist him to use effectively what he has. We do not at any time intend to make a deaf person think that he is normal. What does this third step consist of? It consists essentially of providing the greatest possible control and free experiences in hearing. Some of those can be done in terms of using live situations properly managed, and others can be managed only in a quasilaboratory situation. How practical is this? A few days ago I recommended to a woman who had been fitted with a hearing aid that she learn how to use her radio as a retraining device. It maintains reasonable satisfactory continuous attenuation in a large city. She is able to hear all kinds of speech by amplification. She can sit near or far. My associates and I have prepared a manual that suggests how certain devices of amplification, such as the phonograph and the radio, can be used in the home, and from these devices the patient can learn to make daily and regular adjustment to a hearing aid, which is, after all, a device for amplification.

LIP READING

QUESTION: What is new in speech (lip) reading?

MISS MIRIAM PAULS, Philadelphia: The fundamental objective of aural rehabilitation is to restore ease of communication. This aim is most efficiently achieved when the hard of hearing person is taught to integrate what he hears with what he sees, within the framework of the situation of the moment. This is the role of speech reading. The emphasis is placed on how visual cues supplement auditory cues, for hearing is the easiest and the most natural way to understand speech. The speech reading lessons should be integrated with the auditory training and the two based on a simplified background of phonetics. This in no way implies that speech reading is unimportant. Quite the contrary; it is merely a shift in emphasis. Every hard of hearing person should have instruction in the subject as soon as possible, for it is indispensable. However, its limitations must be recognized. Speech reading can never completely supplant hearing, since much of the speech pattern is next to invisible. The solution for most persons is a combination of a well selected hearing aid and speech reading which will enable them to communicate freely and easily.

PSYCHOLOGIC GUIDANCE

QUESTION: What psychologic guidance and assistance do the hard of hearing and deaf require?

MISS PAULS: Every one working with the deaf and hard of hearing must be a "psychologist" in the broad sense of that overused word, for the basic problem is one of psychosocial adjustment. Everything is hinged on the attitute of the hard of hearing person toward his loss; whether he accepts it calmly and objectively with the quiet determination to conquer it, or whether he chooses to evade the responsibility either by self pity, bluff or rebellion. Group therapy is one of the most effective ways to establish a healthy perspective. In a skilfully conducted class, ostensibly set up to develop skills and give information about ears and deafness and hearing aids, the necessary attitudes are inculcated. Each man profits by the successes and failures of his classmates. A sharing of problems does much to clear the air. It is important that the hard of hearing person accept his responsibility to become a "specialist in deafness," for the more insight and knowledge he has, the quicker and surer is his adjustment.

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INSTRUMENTS, METHODS AND PROCEDURES

QUESTION: How can these instruments, methods and procedures be made practical for the practicing otologist?

DR. EDWARD H. TRUEX, Hartford, Conn.: This is not an easy question to answer in a comprehensive manner since, in referring to instruments, methods and procedures the whole complicated system of aural rehabilitation is involved. The system becomes practical for the practicing otologist only to the extent that the various specialized facilities are available to him and to his patients. Aural rehabilitation is composed of several highly technical fields of endeavor into which the average otologist has neither the training nor the time to enter without neglecting his own specialty.

Aural Rehabilitation Centers.—To be truly practical for the average otologist, aural rehabilitation centers should be established in strategic locations equipped and staffed to carry out all phases of the work. Such centers do exist at the present time, but they are few in number and are for the most part connected with university teaching programs. The establishment of such centers is an ideal which can be attained only over a period of years, but which usually begins with a small nucleus of interested persons and meager equipment. One such nucleus is the local chapter of the American Hearing Society. Some of these organizations are equipped to carry out a hearing aid selection and an auditory training program. All of them offer instruction and practice in speech reading. With a little effort on the part of one or more otologists, limited facilities such as these can be expanded gradually to cover all phases of rehabilitation. If such an organization is not available or if for some other reason its services are not desired, a group of otologists in a community or the otologic staff of a hospital can combine its efforts to institute a part or all of the measures with which we are concerned. As early as possible in the formulation of a rehabilitation unit speech reception equipment should be acquired. This equipment using either recordings or live voice as the testing medium is attainable at a reasonable cost or can be constructed according to desired specifications by any good radio construction man. Personnel needs for the unit at first can be solved by employing a testing technician who has had adequate experience in audiometry and has the ambition and intelligence to progress further. There are several university seminars and well developed functioning centers which offer ample opportunity for him to learn and advance rapidly in his work. On the other hand, if the demands of a newly formed unit warrant, it is possible to employ highly skilled technical help—either men or women—with graduate degrees in speech and hearing conservation. In addition to this type of technical employee, the part time or full time services of a lip-reading instructor will be needed to carry out the pedagogic aspects of the program. The major problem in the formulation of such a unit or clinic concerns the hearing aid samples or supply. In any community only those instruments should be dispensed that have readily available repair and replacement facilities in order to insure the patient uninterrupted hearing. It is possible for any clinic to purchase outright various makes and models of hearing aids, but this is seldom practical from the economic point of view. Any clinic endorsed or actuated by otologists will find the majority of hearing aid agents cooperative. Most of them will be happy to lend the clinic sample instruments and maintain them in optimum working condition, provided that all instruments are given unbiased appraisals in the fitting of each patient. If this system is not practical, two alternatives are left: 1. Arrangements usually can be made for individual hearing aid agents to attend the clinic at specified times to fit patients. In this way supervision can be carried out which will discourage any sales pressure on the part of the agent. Various instruments thus fitted can be tested comparatively on each patient and the final selection made accordingly. 2. The patient can be sent to several different agents with the understanding that no instrument would be purchased without being tested in the clinic. This method does not eliminate the effectiveness of sales personality but does offer the opportunity of testing several instruments in a selective process.

Informing the Patient.—In most communities it is not possible to support such a clinic, and yet the otologist is anxious to be of greater personal assistance to the hard of hearing patient. There are several things that he can do in his office. The simplest measure which will be of great benefit is to devote a few extra minutes to the imparting of information. As a rule most of us recommend that a patient buy a hearing aid, offer him the names of one or more distributors and send him on his way. 1. Be sure that such a patient understands that a hearing appliance does not correct the defect that exists, that it merely amplifies sounds for him to hear. It is not comparable to a precision ground lens which corrects an optical defect in the eye. 2. Warn the patient about noises. An aid will amplify ambient noises as well as the sound that he is desirous of hearing. These noises will disturb him a great deal, especially since he has not heard them for some time. It is important that he not purchase a particular hearing aid just because it is the least noisy one, since it is usual that the instruments which amplify extraneous sounds most loudly also will amplify the spoken voice most satisfactorily. The patient should understand that selectivity is a faculty of his central nervous system and not to any great extent an inherent part of the instrument, that weeks and even months of intelligent usage will be necessary before optimum benefits are attained. 3. He should be advised to take instruction in reading lips if such instruction is available. Do not mislead him into the belief that learning to read lips will be easy or that it will solve most of his conversational problems. On the contrary, he should be informed that it will be an arduous and boring task to become relatively proficient and at best it is only an adjunct to his aided or unaided hearing. The few extra minutes devoted to discussing these subjects and answering questions which the discussion evokes will be of immeasurable benefit to the patient.

Custom Made Ear Piece.—The otologist actually can go one step further in his office practice without a gross expenditure of time. Optimum reception from an air conduction hearing aid necessitates a custom made ear piece. Ordinarily the impression is taken by the sales agent and the ear piece furnished after the patient has decided to purchase a particular instrument. I believe that the piece should be furnished before any attempt is made to select an instrument, thus eliminating one of the many variables that are encountered in comparatively evaluating different makes and models of aids. The new plastic dental impression compounds permit the otologist to take an impression of the concha and canal with safety and cleanliness in a period of ten minutes. The impression can be sent to any of several laboratories for processing, and the finished "lucite" product will be returned within a few days. Moreover, if the ear piece is furnished, most of the hearing aid companies will deduct its cost from the cost of the instrument purchased. The otologist can go considerably further if he so desires, but in so doing he must be prepared to devote many hours of his time to each patient or must employ technical help as part of his office staff to do the work under his direction. It is entirely practical under these conditions and with speech reception equipment to carry out a system of hearing aid selection and auditory training in private practice.

AURAL REHABILITATION

QUESTION: How much can I expect general otologic treatment to contribute to an aural rehabilitation program?

DR. TRUEX: General otologic treatment is of much greater importance in the prevention of handicapping degrees of hearing loss than it is in the restoration of serviceable hearing to those so handicapped. As a rule, the person whose acuity of hearing is sufficiently poor to warrant rehabilitative measures has little chance of rehabilitation through general otologic treatment. Moreover, the longer the hearing loss has existed the more remote becomes the possibility of significantly improving it by ordinary methods. In this connection it is worthy of note that the vast majority of patients who are in need of aural rehabilitative measures have experienced the gradual increase of the deficiency over a period of years. Hearing loss becomes a decided handicap when it reaches the 30 to 35 decibel level in the better ear. This may be considered the critical level at which a ten decibel change in either direction means the difference between serviceable unaided hearing and a prosthetic device. The removal of aural polyps and the drying up of

chronically discharging ears frequently result in the gain necessary to elevate the acuity of hearing to a practical level. Occasionally sinusitis and nasopharyngitis, allergic rhinitis and nasal polyps are important factors in depressing middle ear functions and when adequately treated result in an improvement above the critical level of hearing. The removal of nasopharyngeal lymphoid tissue by surgical treatment or radiation or by a combination of the two often results in a dramatic improvement in auditory function and not infrequently in a return of hearing to normal. These dramatic results are observed almost exclusively in children whose difficulty is due to obstruction of the eustachian tubes. Nevertheless, a conductive or predominately conductive type of hearing deficiency warrants careful attention to the nasopharyngeal lymphoid tissue, particularly if the history suggests repeated otitic inflammation. I think that we all agree that general otologic therapy is of no specific benefit when the deafness results from otosclerosis or when due either to primary or secondary damage to the neural elements. Some of these patients experience a certain psychological benefit from treatment, but such benefit is immeasurable and short lived. Certainly every patient with a handicapping degree of hearing impairment who has some chance of improvement should be treated intensively, but they are few in number. The others should not be obliged to waste time and money in receiving treatment. They should be advised against constantly grasping for miraculous cures. They should be informed that you as an otologist will seek them out if research uncovers anything that promises to help their hearing. Then they should be assisted in implementing their residual hearing through the other methods discussed here today.

SURGERY

QUESTION: What part does surgery play in the rehabilitation of the hard of hearing?

Dr. TRUEX: Surgical treatment has been firmly established as a method of rehabilitating in certain cases of impaired hearing. I refer, of course, to the Lempert fenestration operation. As more and more trained surgeons become experienced in performing this operation, the greater will be its effectiveness. Moreover, continuing research may increase the scope of this procedure to include a considerably larger proportion of the hard of hearing population and almost certainly will result in a consistently higher percentage of permanent successes. At the present time reports of successful fenestration operations vary from about 30 per cent to over 80 per cent of cases operated on. Some of this large discrepancy can be attributed to overenthusiasm on the part of the surgeon in evaluating his results. Some is certainly due to a careless selection of patients for operation, and some of it, I am sure, can be blamed on the liberties taken by some surgeons in determining success or failure. By far the major part of the discrepancy in my opinion is attributable to the variations in technical skill and experience of the operator. There are few operative procedures wherein success depends on the same scrupulous attention to detail and deftness of the surgeon's hand as does the Lempert fenestration from start to finish. A truly successful fenestration operation is a much more satisfactory method of rehabilitation than is the combination of a hearing aid auditory training and instruction in lip reading. However, a relatively small percentage of those handicapped by hearing defect can be operated on with a reasonable chance of attaining practical hearing. Evidence of moderate to severe impairment of cochlea function is a definite contraindication to surgical treatment. The same applies to chronically or recurrently infected middle ears. If these cases are eliminated along with those with systemic contraindications both mental and physical, the operation has only limited application. Most of these patients can be eliminated by the otologist without sending them long distances for examination by the fenestrationist. I believe it is unwise to try to "sell" the operation to a patient, since the results for any individual patient are absolutely unpredictable, and it is not without hazard, discomfort and prolonged after-care. It should be borne in mind that those on whom the fenestration might be satisfactorily performed are as a rule easily fitted with an air or bone conduction hearing aid. I believe that the hearing aid should be heartily recommended. The patient inevitably will ask whether there is not something that can be done medically or surgically, whereupon the fenestration operation should be discussed in detail with the utmost honesty. When a hearing aid and lip reading do not serve a patient satisfactorily in his social and economic endeavors or when he has a decided aversion to such measures, the fenestration operation should be suggested. The carefully selected patient has little to lose and much to gain in these circumstances.

COMMUNITY REHABILITATION PROGRAM

QUESTION: What are my responsibilities as an otologist for the organization and establishment of a total rehabilitation program in my community?

Dr. CHARLES E. KINNEY, Cleveland: Any otologist worthy of such a title should be a well versed audiologist. He should keep abreast of advances in the fields of detection of hearing losses, hearing testing and analysis, lip reading and auricular training. These fields are expanding so rapidly that it is impossible for one person to be an expert in all of them—but the otologist in any given community is the logical person to lead in the establishment of a total aural rehabilitation program in his area. Impaired hearing is a pathologic condition and as such is fundamentally a medical problem. America is progressing so rapidly that no physician or group of physicians can pass a resolution to the effect that hearing problems must be left in the hands of medicine and then sit back with their thumbs in their vests. As has already happened in some areas in this country the problem will "pass up" the physician. In addition to the moral responsibility devolving on the otologists of a community to lead in the establishment and running of a rehabilitation program, there is the unlimited interest that may be derived from such an endeavor. To this point, I can speak with experience. This interest can be described under three points, namely: (1) the obtaining of heart-tingling successful results; (2) the chance to offer a replacement in the training of younger otologists for the dramatic complications of mastoid disease that occurred up to twelve years ago and (3) the opportunity to enhance one's personal prestige by delving into a relatively new field.

COMMUNITY RESOURCES

QUESTION: What community resources are available to me, and how can I coordinate them?

Dr. KINNEY: Too often the first thought is to go to some political body and get a law passed. The second mistake is to start talking about the erection of a new building with all the expensive electrical gadgets that are being used in some centers. Methods of detecting loss of hearing in children have now developed to the point where it is possible to establish such programs on a completely decentralized basis and still have fairly uniform technics. This fact, coupled with the belief that it is the responsibility of local boards of education to detect sensory impairments in children under their care, makes this approach the logical first step. It is possible to convince any thinking board that the number of pupil failures can be reduced by about 30 per cent when a good functioning program of hearing loss detection is in effect. The cost of reteaching failures is well known, and it is easy to convince a board that such a program will soon pay for itself. Recommended methods of procedure have been published by others and myself and do not need repeating.

Sources of Funds.—As the twig is bent so will grow the tree. Applying this axiom to the hearing problem, many hearing problems among adults will be eliminated by a good hearing conservation program in the schools. The next step is go into the adult field. With a program in effect for conservation of hearing among children there will then be available lip reading and auricular training teachers to be the nucleus for a program among adults. The community fund is a logical financial approach to the adult problem, but in no instance should this remain the only source of revenue. Ten years ago, our program in Cleveland was 100 per cent supported by the community fund, but today this support amounts to only 26 per cent. This other support may come from service organizations such as the Rotary and Kiwanis, from veterans' organizations such as the American Legion and the Veterans of Foreign

V 19

wars, from any number of fraternal organizations, from civic organizations such as senior and junior chambers of commerce and from individual persons and foundations. As the program for conservation of hearing of adults develops further, there then become available new sources of revenue. An impartial hearing aid advisory bureau is now possible, and we have found that fees charged persons using this service have been graciously refunded to these persons by the local agents who sell them their hearing aid. And, finally, if a university connection is possible, the tuition fees charged students taking up the various phases of this work make up a goodly amount. You will notice that I have eliminated federal, state and city control of such a program. This is desirable.

RESEARCH

QUESTION: What research needs to be done?

DR. KINNEY: Research in the problem of deafness is still a large field. At least fifty problems need much study. I will confine my answer of this question to outlining four important **problems. The first of these is a better understanding of the physics of the movement of fluids in a closed container. Then we could better study the function of the perilymph and endolymph.**

The work that is being done at the University of Chicago on ossicular movements is an example of fundamental hearing research. The second fundamental research that I would like to mention is of a sociologic nature. Every year in this country several hundred children are born without hearing because of this tendency in their progenitors. If we can inbreed certain desirable traits in our population, it is possible to outbreed this undesirable trait. The third problem that needs much study is the pathology and chemistry of otosclerosis. Although I consider the fenestration operation the greatest otologic contribution in this century, it is still a treatment of the deafness and does not alter the disease. The enthusiastic reports of successful treatment of this disease have been marred by poor hearing testing methods. The fourth problem is in the field of physics. This concerns the problem of sound transmission. Although the principle of microwave transmission was first described during the last century it is just now being developed to the point where it looks as if it may be used in the hearing problem. The Bell Laboratories did wonderful work during the war in the development of methods of destroying our enemies. Let us now use this knowledge in defeating the handicap of deafness.

THE MODERATOR: We have finished our questions, but certainly I have heard some provocative remarks. I know there are experts in the audience, and with due humility we faced you. We were only selected; it was not our own choice, but we hope we have contributed something, and perhaps you would like to ask some questions or add something to this panel discussion.

COMBAT CASUALTIES

DR. CANFIELD: The figure that was given on the film as 25 per cent of combat casualties must be clearly understood. By that is meant the men in the war whose deafness came on actually in combat. That means when they were exposed to the gunfire or when they were on the front line. Now, the two large groups that were studied in the Army varied from 38 per cent to about 18 per cent; and that is how that figure of 25 per cent was arrived at. It is believed that it is somewhere between those two. As for the amount of psychogenic deafness among civilians as profound as you saw a picture of on the film, it is probably in much less than 1 per cent of all of the persons who have hearing handicap. I mention this because the film did present a new technic. We do not know precisely the number of civilians with psychogenic deafness, but we do not feel that it is much less than 1 per cent. The 25 per cent was the percentage of men whose hearing actually was depleted in the battle itself, and not the number of men who came from the hearing centers.

PSYCHOGENIC DEAFNESS IN CHILDREN

QUESTION: Are the psychogenic factors in the hearing suppression in children?

DR. KOEPP-BAKER: Yes. The character of disturbances of emotional life in children has received emphasis in recent times, particularly on the diagnostic side. Most of us are aware that a number of persons have become sensitive to the fact that many young children seem to hear less than they ought to be hearing with their mechanisms. Hearing and understanding are two different things. Any tests that relate to this dysfunction in children must take into account a larger aspect which is total language function.

IRRADIATION AND ADENOIDECTOMY

QUESTION: Are there any statistical studies on the improvement of hearing following adenoidectomy or irradiation of lymphoid tissue?

DR. TRUEX: It just happens that all of us in our routine practice have seen cases of early hearing loss in which the middle ear is involved in children respond dramatically to removal of the adenoids or to irradiation, and as far as statistics which are reliable are concerned, which would cover a large group of children I cannot give you a definite answer more than to **refer you to Dr. Crowe's literature on the subject, from Johns Hopkins University.**

DEAFNESS IN SCOTLAND

DR. G. E. MARTIN, Edinburgh, Scotland: This problem that we have been discussing today is our problem as well. We have given no all thought except under what we call our Administrative Pensions, which is your Veterans Administration. We have given up all thought of carrying it out among adults until we can get our school clinics going. We have been handicapped with a disruption of the whole of the country during the war, but our school clinics are going in many cases and we have also a certain amount of research work going on under the auspices of our Medical Research Council, which is not a government council but is about that, and this research is being carried out by three committees. Unfortunately, I have had to be on the three of them. One is on the question of hearing aids. The second one is on the education of the deaf, and the third is on the surgical and medical aspects of deafness. The report on hearing aids is in print but has not been released to the general public, partly because the Government has stepped in trying to make use of a new hearing aid which is being evolved by the experts on this committee and which is better than any other hearing aid in the market as far as I have seen, and much cheaper. It embodies a new principle, which is simple and makes the hearing aid cheap. That hearing aid, unfortunately, is not in the Government control, and we cannot say much about it because we cannot get hold of it, but the work of that committee will soon be made available. The other two committees are still going on. They are extensive, because the one, for instance, on the education of the deaf not only is composed of otologists, but also teachers, and we are concerned **with the question of how best to teach teachers to train the deaf, to teach people to look after those clinics and also to teach otologists to recognise deafness. The third is taking up all the** medical and surgical problems of deafness, much of which was discussed this morning with the Lempert operation. We do not call it the Lempert operation, of course, but we recognize that the operation has been built up here on a scale such as we have never been able to do it, and the results we have correlated in the most scientific way that we possibly can. You have heard today how some of the figures are up 35 per cent, others up 85 per cent. There must be something wrong in getting these figures together, and that which has behind it, fortunately, unlimited scope and also plenty of money; because it is controlled by the Treasury and cannot be interfered with by the Government. Hence, we hope to have the primary reports of two of these committees out by the end of this year; then one will be able to get down the things much better than in the past.

Clinical Notes, Suggestions and New Instruments

SENSITIVITY TO STREPTOMYCIN

Anaphylactic Shock with Recovery Following an Intracutaneous Test

FRANK L. ROSEN, M.D.
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A recent report[1] advises intradermal tests for determination of sensitivity to streptomycin. That this procedure is not without danger is illustrated by the following report of a case.

Report of a Case

F.S., a 21 year old white student nurse in her third year of training, complained for a year of rash and itching of the fingers and dorsa of the hands. There was no history of previous allergic disease except for occasional mild urticaria. Dermatologic treatment, together with a course of roentgen therapy, had brought no relief. She had never received penicillin or streptomycin, but had been exposed to them in the course of her work.

Results of examination were normal except for the fingers and dorsa of the hands, which revealed a vesicular weeping scaling rash, suggesting contact eczematous dermatitis.

On the medical ward of the hospital, Oct. 20, 1947 I injected intracutaneously 0.05 cc. of streptomycin (Merck, calcium chloride complex). The test dose (5,000 units) was taken from a 20 cc. vial made up for 100,000 units per cubic centimeter. The contents of the vial had been given to several patients on the ward in 200,000 unit doses without any untoward reaction.

About two minutes after the test, the patient complained of generalized itching and wheezing and then collapsed, with weak and rapid pulsation. She was given a subcutaneous injection of 0.5 cc. of epinephrine and admitted to the medical service.

She continued to wheeze for about fifteen minutes, was semistuporous and complained of generalized itching and severe cramps in the lower part of the abdomen. About one-half hour after the test both eyelids swelled up. Two hours later her temperature was 101 F., pulse rate 80 and respirations 20. Asthmatic pulmonary findings had now disappeared. The generalized itching and cramps (uterine contractions?) persisted for the next two days, with moderate relief obtained with epinephrine, tripelennamine hydrochloride (" pyribenzamine hydrochloride") and meperidine hydrochloride (" demerol hydrochloride"). The patient returned to duty on October 23.

Subsequent routine allergy tests revealed positive reactions to the following items: dust (moderate), ragweed (decided), alternaria (decided), tobacco (decided), cat dander (slight), aspergillus (slight), kapok (moderate), buckwheat (slight) and green peas (decided). Reactions to passive transfer tests, with 100 units per cubic centimeter of streptomycin injected intracutaneously, were moderately positive. Patch tests with the substances encountered in the patient's environment revealed positive reactions only to soft soap liniment and benzalkonium chloride (" zephiran chloride tincture I to 1,000 [tinted]"). Patch tests with streptomycin were not done.

Comment

No reaction to streptomycin was evident at the cutaneous test site for forty-eight hours; a typical tuberculin type of response then appeared, with a reddened indurated area of 3 by 4 cm. This reaction gradually faded out over a period of one week.

Conclusion

If cutaneous tests with streptomycin are contemplated in nurses and others who handle streptomycin, especially those who have cutaneous lesions due to contact, it is suggested that the usual vial strength used for therapeutic purposes (100,000 to 200,000 units per cubic centimeter) be well diluted. Rauchwerger[1] and his associates suggested 100 units as the cutaneous test dose.

From the Medical Service of Dr. Jerome G. Kaufman, Newark Beth Israel Hospital.

1. Rauchwerger, S.M.; Erskine, F.A., and Nalle, W.L.: Streptomycin Sensitivity, J.A.M.A. 136: 614-615 (Feb. 28) 1948.

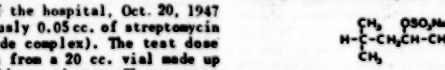
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

SODIUM TETRADECYL SULFATE.--Sodium-2-methyl-7-ethylundecyl sulfate-4.--$C_{14}H_{29}SO_4Na$.--M.W. 316.43. The structural formula of sodium tetradecyl sulfate may be represented as follows:



Actions and Uses.--Sodium tetradecyl sulfate is an anionic surface active agent that has been found to be useful as a wetting agent to increase the surface activity of solutions of certain externally applied antiseptics to which it may be added. It also possesses sclerosing properties useful for the obliteration of varicose veins by intravascular injection of buffered solutions in appropriate concentration. Its rather profound sclerosing action is subject to the disadvantage that injection may produce sloughing and is occasionally associated with greater frequency of leg cramps and pain than with other sclerosing agents. On the other hand, the possibilities of sensitization are considered remote and idiosyncrasies or anaphylactoid reactions that have infrequently occurred are mild and of short duration. The possibility of undiscovered toxic effects should be borne in mind, but careful clinical studies to date appear to warrant use of the compound as a reasonably safe sclerosing agent.

Sodium tetradecyl sulfate is subject to the same general contraindications as for other sclerosing agents. See preceding general statement on Sclerosing Agents.

Dosage.--Sodium tetradecyl sulfate is employed for sclerosing therapy of varicose veins in buffered solutions of 1 per cent, 3 per cent and 5 per cent concentrations depending on the size of the veins (amount of hemodilution) to be obliterated. The 3 per cent solution is considered ade-

quate for most sites. The average amount to be injected at any one site should be from 0.5 to 1 cc. and at any one sitting, 2 to 3 cc. Not more than 6 cc. of the 5 per cent solution or 10 cc. of the 3 per cent solution should be injected at any one occasion. Repeated injections should be carried out at weekly intervals. The 1 per cent concentration should be used for all small superficial varicosities to avoid possible sloughing that may occur with the use of stronger concentrations for such veins. It is further recommended that not more than 1 cc. of the 1 per cent concentration be used as a test dose on the first injection to detect any possible idiosyncrasy. Treatment should not be instituted or continued if alarming reactions occur.

Tests and Standards

Sodium tetradecyl sulfate occurs as a white, waxy, odorless solid. It is soluble in water, alcohol and ether. A 5 per cent aqueous solution is clear and colorless. The pH of a 5 per cent solution ranges from 6.5--9.0.

Add 3 drops of 5 per cent sodium tetradecyl solution to 1 cc. of ortho-phenanthroline T. S.: an orange-red precipitate forms.

Dissolve 1 Gm. of sodium tetradecyl sulfate in 20 cc. of water and make up to 25 cc., transfer to a 50 cc. Nessler tube. Add 10 cc. of hydrogen sulfide T.S. and allow to stand 10 minutes: No more color develops than corresponds to 20 parts per million of lead (*U.S.P. XIII, p. 657*).

Dry 2 Gm. of sodium tetradecyl sulfate, accurately weighed, in a vacuum desiccator for 48 hours: the loss in weight is not more than 10 per cent. Weigh, accurately, 1 Gm. of sodium tetradecyl sulfate into a tared platinum dish, add 2 cc. of sulfuric acid and heat gently to avoid spattering until no more fumes of sulfur trioxide are evolved. Repeat this treatment twice, then ignite and weigh. The sulfated ash content is not less than 19 per cent or more than 25 per cent.

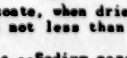
Weigh, accurately, about 0.3 Gm. of sodium tetradecyl sulfate into a suitable flask. Add 2 drops of bromcresol purple T.S., and neutralize with tenth - normal hydrochloric acid. Add slowly, with shaking, 25 cc. of a five-hundredth molar benzidine hydrochloride. Shake well and allow to stand at room temperature for 1 hour. Filter with suction. Test the filtrate for completeness of precipitation. Wash the precipitate with distilled water until the washings are neutral. Dissolve the precipitate by washing 4 times with hot 95 per cent alcohol previously neutralized to bromcresol purple T.S. Titrate the hot alcoholic solution with five-hundredth normal sodium hydroxide using bromcresol purple T.S. as the indicator. Each cc. of five-hundredth normal sodium hydroxide is equivalent to 0.0158 Gm. of sodium tetradecyl sulfate. The sodium tetradecyl sulfate found is not less than 95 per cent.

WALLACE & TIERNAN PRODUCTS, INC., BELLEVILLE, N.J.

Solution Sodium Sotradecol with Benzyl Alcohol 2%: 1, 3 and 5 per cent solution, 20 cc. vials.

U.S. trademark registered.

SODIUM PARA-AMINOBENZOATE.--The sodium salt of para-aminobenzoic acid.--$NaC_7H_6O_2N$.--M.W. 159.12 The structural formula of sodium *p*-aminobenzoate may be represented as follows:



Sodium *p*-aminobenzoate, when dried at 110 C. for 3 hours, contains not less than 98 per cent of $NaC_7H_6O_2N$.

Actions and Uses.--Sodium para-aminobenzoate has been found to exert a depressant action on the metabolism of rickettsiae that is useful for the management of certain rickettsial diseases. It is reported to be of value in the treatment of Rocky Mountain spotted fever, epidemic and endemic (murine) typhus and tsutsugamushi disease (scrub typhus). It has not proved uniformly successful in the treatment of all rickettsial infections, so its ultimate value against other forms of typhus or rickettsial diseases remains to be determined. Its use as a prophylactic is not recommended until more is known of its long term toxic effects in man and its ultimate protective value when administered routinely to persons in endemic areas.

Sodium para-aminobenzoate should not be administered in conjunction with the sulfonamide drugs because of the well known inhibitory effect of para-aminobenzoic acid on the antibacterial effect of these agents. It is not antagonistic to penicillin.

Dosage.--Sodium para-aminobenzoate is administered orally in tablet form. The recommended average adult initial therapeutic dose is 4 to 6 Gm.; this may be followed by doses of 2 to 3 Gm. every 2 hours. Within the first 24 hours of therapy with para-aminobenzoic acid in rickettsial diseases, concentrations of 30 to 40 mg. per hundred cubic centimeters of the drug should be obtained and then maintained in the blood of the patient. If definite improvement is not noted within 48 hours, increase the dose of the drug to a point which will produce a concentration of 40 to 50 mg. of para-aminobenzoic acid in the blood of the patient. Levels above 60 mg. may be dangerous, because para-aminobenzoic acid is not a completely innocuous agent but may produce hepatic and renal lesions. Blood levels range 30 to 60 mg. per hundred cubic centimeters, but since this seems to be more a function of the urinary output than of the dosage, this is usually limited to 500 cc. per day by restriction of fluid intake. Until more is known concerning the possible toxicity of the drug in man the administration of a daily dosage in excess of 30 Gm. for a period of more than one week is not recommended.

Tests and Standards

Sodium *p*-aminobenzoate occurs as a white to a buff-colored, odorless, crystalline powder, possessing a saline taste. It is freely soluble in water, slightly soluble in alcohol, very slightly soluble in benzene and chloroform and practically insoluble in ether. An aqueous solution is alkaline to litmus paper.

Dissolve 2 Gm. of sodium *p*-aminobenzoate in 45 cc. of water, and add 5 cc. of diluted hydrochloric acid: a white flocculent, crystalline precipitate of *p*-aminobenzoic acid is formed. (Avoid the addition of excess hydrochloric acid which will redissolve the precipitate.) Filter by suction and reserve the filtrate for the heavy metals test listed hereafter. Wash the precipitate twice with small portions of cold water, recrystallize from alcohol, filter and dry at 110 C.: the *p*-aminobenzoic acid so obtained melts between 186 and 189 C.

Dry about 2 Gm. of sodium *p*-aminobenzoate, accurately weighed, for three hours at 110 C.: the loss in weight does not exceed 7.5 per cent.

Dissolve 50 mg. of sodium *p*-aminobenzoate in 5 cc. of water; add, in order, 0.5 cc. of diluted hydrochloric acid, 0.5 cc. of tenth-molar sodium nitrite and 10 cc. ammonia water containing 0.2 Gm. of β -naphthol: a red color develops.

Place 50 mg. of sodium *p*-aminobenzoate in a test tube containing 2 cc. of water and add, in order, 0.5 cc. of potassium iodide, T.S., 0.4 cc. of diluted hydrochloric acid, and 0.5 cc. of sodium hypochlorite T.S.: a heavy brown precipitate forms (difference from *p*-aminohippuric acid).

An aqueous solution (1 in 10) responds to the tests for sodium, *U.S.P. XIII, p. 663.*

Transfer about 1 Gm. of sodium *p*-aminobenzoate, dried and accurately weighed, to a 25 cc. Erlenmeyer flask containing 5 cc. of water and add 2 drops of phenolphthalein T.S.: no more than 0.5 cc. of fiftieth-normal sulfuric acid is required to discharge any pink color which may develop.

Transfer about 0.3 Gm. of sodium *p*-aminobenzoate, dried and accurately weighed, to a platinum crucible and ash to a white residue. Cool, add carefully a few drops of sulfuric acid and ignite to constant weight: the weight of the sulfated ash calculated as sodium sulfate is not less than 44.1 per cent or more than 44.8 per cent.

A 0.2 Gm. sample of sodium *p*-aminobenzoate shows no more chloride than corresponds to 0.15 cc. of fiftieth-normal hydrochloric acid (*U.S.P. XIII, p. 709*). A 0.3 Gm. sample of sodium *p*-aminobenzoate shows no more sulfate than corresponds to 0.1 cc. of fiftieth-normal sulfuric

acid (U.S.P. XIII, p. 709). The heavy metals limit (U.S.P. XIII, p. 657) of 25 cc. of the filtrate obtained previously in the melting point procedure is 20 parts per million.

Transfer about 0.3 Gm. of sodium *p*-aminobenzoate, accurately weighed, to a 250 cc. beaker. Add 5 cc. of hydrochloric acid and 50 cc. of water. Mix to obtain complete solution, cool to 15 C. and add about 25 Gm. of crushed ice. Slowly titrate with tenth-molar sodium nitrite, previously standardized against sulfanilamide (U.S.P. XIII, p. 865), until a blue color is produced immediately when a glass rod dipped into the titrated solution is streaked on a smear of starch-iodide paste T.S. When the titration is complete, the end-point is reproducible after the mixture has been allowed to stand for 1 minute. Each cc. of tenth-molar sodium nitrite is equivalent to 0.01591 Gm. of sodium *p*-aminobenzoate: the sodium *p*-aminobenzoate content, calculated on the dry basis, is not less than 98 per cent or more than 101 per cent.

INTERNATIONAL VITAMIN DIVISION, IVES-CAMERON CO., INC., NEW YORK

Tablets Sodium Paba: 50 mg.

WYETH, INC., PHILADELPHIA, PA.

Tablets Sodium Paba: 0.5 Gm.

U.S. patent 2,403,473.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies, 1947, p. 343).

The following dosage form has been accepted:

REED & CARNRICK, JERSEY CITY, N. J.

Solution of Estrogenic Substances in Oil: 1 cc. ampuls and 4 cc., 10 cc. and 25 cc. vials available as 2,000 international units per cubic centimeter, 6,000 international units per cubic centimeter, 10,000 international units per cubic centimeter and 25,000 international units per cubic centimeter in peanut oil. Preserved with chlorobutanol 0.5 per cent.

Tablets Estrogenic Substances: 1,000 international units and 5,000 international units.

LINCOLN LABORATORIES, DECATUR, ILL.

Solution of Estrogenic Substances in Oil with Benzyl Alcohol 2 per cent: 1 cc. ampuls and 15 cc. vials available as 5,000 international units per cubic centimeter, 10,000 international units per cubic centimeter and 20,000 international units per cubic centimeter in sesame oil. Preserved with chlorobutanol 0.5 per cent

CARPOLL DUNHAM SMITH PHARMACAL COMPANY, NEW BRUNSWICK, N. J.

Aqueous Suspension Estrusol: 1 cc. dual syringe cartridges available as 20,000 international units per cubic centimeter. Each cubic centimeter contains isotonic sodium chloride suspension of estrogenic substances, principally estrone, with small amounts of other natural estrogens. Preserved with chlorobutanol 0.5 per cent.

STREPTOMYCIN (See New and Nonofficial Remedies, 1947, p. 150).

The following additional dosage forms have been accepted:

MERCK & CO., INC., RAHWAY, N. J.

Streptomycin Calcium Chloride Complex: 50 cc. vials containing streptomycin calcium chloride complex equivalent in activity to 5 Gm. of streptomycin base.

CHAS. PFIZER & CO., INC., BROOKLYN

Streptomycin Sulfate: Bulk

PENICILLIN (See New and Nonofficial Remedies, 1947, p. 144).

The following additional dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Tablets Penicillin Calcium: 100,000 units with sodium citrate 1 Gm. as a buffer.

Dulcet Tablets Crystalline Penicillin G Potassium (Buffered): 50,000 units with calcium carbonate 0.25 Gm. as a buffer.

U. S. trademark 301,66

CHAS. PFIZER & CO., BROOKLYN

Crystalline Penicillin G Sodium: 1,000,000 unit vials.

MENADIONE SODIUM BISULFITE (See New and Nonofficial Remedies, 1947, p. 534).

The following dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Solution Hykinone: 72 mg., 10 cc. ampuls. Each 10 cc. contains menadione U.S.P. 72 mg. and sodium bisulfite 27.5 mg. in an aqueous solution made isotonic with sodium chloride.

U. S. Patent 2,367,302, U. S. Trademark 383,789

FUNGUS EXTRACTS (See New and Nonofficial Remedies 1947, p. 9).

The following dosage form has been accepted:

ARLINGTON CHEMICAL COMPANY, YONKERS, N. Y.

Fungus Allergens: These preparations are marketed in vials containing 50 mg. of the dried fungi. In addition the items to follow are marketed as extracts for hyposensitization in 3, 5 and 10 cc. vials at concentrations 1:20, 1:33, 1:100, 1:500, 1:1,000, 1:5,000, and 1:10,000. Treatment sets of five 3 cc. vials with one vial at each of the following concentrations 1:10,000, 1:5000, 1:1000, 1:500, 1:100 are also offered.

Extracts marketed in dry form, and in solution form:

Achorion schoenleinii; Alternaria sp.; Aspergillus flavus, Aspergillus fumigatus; Aspergillus glaucus; Aspergillus nidulans; Aspergillus niger; Cephalosporium; Cephalothecium; Chaetonium sp.; Cladosporium; Epidermophyton inguinale; Fusarium; Helminthosporium; Hormodendrum; Microsporum lanosum; Monilia albicans; Monilia sitophila; Mucor plumbeus; Penicillium camemberti; Penicillium chrysogenum; Penicillium digitatum; Penicillium notatum; Penicillium roqueforti; Rhizopus; Trichoderma; Trichophyton gypseum, and Trichophyton interdigitale.

In addition the following stock fungus mixtures are offered in solution form only.

Aspergillus mixture containing equal parts of A. flavus, A. fumigatus, A. glaucus, A. nidulans, A. niger.

Penicillium mixture - containing equal parts of P. camemberti, P. chrysogenum, P. digitatum, P. notatum, P. roqueforti.

Trichophyton mixture - containing equal parts of T. gypseum, T. interdigitale, and Epidermophyton inguinale.

Fungus Allergens-Arlington are made according to a standard method, viz., grown in a peptone-cerelose-yeast extract medium, collected by filtration, washed with acetone, and ether and dried.

Fungus Allergen Extracts-Arlington are prepared as follows: (directions for preparation of 1000 cc. of extract 1:20 concentration).

Fifty grams of dried fungus material are suspended in 800 cc. of N/20 sodium hydroxide, and the suspension is placed on the shaking machine for four hours. The suspension is centrifuged and decanted, and the residue is exhausted by successive extractions with N/20 sodium

hydroxide until the total volume of the N/20 sodium hydroxide fractions equals 850 cc. Ethyl alcohol (95%) is added to the extract to yield a 14% alcoholic solution, and the extract is filtered through paper pulp until clear. The reaction of the solution is adjusted to pH 8.3 by the addition of either hydrochloric acid, or sodium hydroxide. Tricresol in the proportion of 0.4% is added, and the solution sterilized by filtration through a Berkefeld filter. The finished products are placed on sterility tests, and mouse-test according to the methods required by the U.S. Public Health Service.

From this 1:20 extract, necessary dilutions are prepared aseptically with a diluent of sterile phosphate buffer containing 14% alcohol by volume and 0.4% tricresol. The intermediate and finished products are tested for sterility according to the methods required by the U.S. Public Health Service.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

ADC AUDIOMETER, MODEL 50, ACCEPTABLE

Manufacturer: Audio Development Company, 2835 Thirteenth Ave S., Minneapolis 7.

The ADC Audiometer, Model 50, is a fixed frequency instrument designed to test a person's auditory acuity by presenting pure tones at 128, 256, 512, 1,024, 1,448, 2,048, 2,896, 4,096, 5,792, 8,192, and 11,584 cycles per second. The apparatus is housed in a wooden case with a sloping control panel in front; the over-all dimensions are 52 by 28 by 20 cm. (20½ by 11 by 8 inches) and the weight is given as 15.9 kg. (35 pounds). It operates on 110 volt, single phase 60 cycle alternating current; modifications are available for other power sources.

The instrument is equipped with both air and bone conduction receivers, a masking tone circuit, a tone interrupter, a microphone, a signal button and a malingering test circuit. A special feature of the instrument is the inclusion of a matched pair of headphones for air conduction testing.

In evaluating this instrument the Council availed itself of detailed reports on electroacoustic performance of the instrument from two other laboratories as well as of a special report by a Council investigator who made a large number of practical tests. The matched headphones were found to be an exceedingly helpful feature. Being able to present the masking tone through one of the two matched receivers is also an advantage. The inclusion of a midoctave tone at 1,448 cycles per second permits extra exploration when circumstances indicate. Dials and controls were found to be conveniently placed and easily read. The Council on Physical Medicine voted to include the ADC Audiometer, Model 50, in its list of accepted devices.

LIEBEL-FLARSHEIM FREQUENCY CONTROLLED SW-227 SHORT WAVE DIATHERMY UNIT ACCEPTABLE

Manufacturer: Liebel-Flarsheim Company, 303 West Third Street, Cincinnati 2.

The Liebel-Flarsheim Frequency Controlled SW-227 Short Wave Diathermy Unit generates high frequency electrical energy for the purpose of heating human living tissues in the treatment of disease. The electrical circuit and mechanism for controlling the frequency of Model SW-227 have been inspected and approved by the Laurel Laboratories of the Federal Communications Commission. The apparatus operates on a frequency of 27.130 megacycles and is equipped to apply energy by three different methods, namely, "spaced plate electrodes," "hinged treatment drum" and "inductance cable." The appliance requires 115 volts AC current, draws 11.5 amperes and at full load pulls 750 watts. The unit is finished in ivory or walnut; it measures 108 by 61 by 43.2 cm. (42½ by 24 by 17 inches); it weighs 77.6 Kg. (171 lbs.), and its shipping weight is 108 Kg. (238 lbs.). The apparatus has received the approval of the Underwriters' Laboratories.

The evidence submitted by the firm for power output was obtained on phantom loads. The highest output reported was 330 watts on a lamp load, using air spaced electrodes. With a cable electrode the output was 315 watts, and with the hinged treatment drum it was 250 watts. Using a calorimeter the firm reported a maximum of 310 watts obtained by the cable method. These tests on phantom loads were repeated in the laboratory of the Council and were verified within the limits of experimental error. The diathermy apparatus was sent to an investigator for clinical trial and was reported to give satisfactory service.

The Council on Physical medicine voted to include the Liebel-Flarsheim Frequency Controlled SW-227 Short Wave Diathermy Unit in its list of accepted devices.

ILLE FULL BODY IMMERSION TANK UNIT, MODEL HM-801, ACCEPTABLE

Manufacturer: Ille Electric Corporation, 36-08 Thirty-Third Street, Long Island City 1, New York.

The Ille Full Body Immersion Tank, also called the Ille Hydromassage Subaqua Therapy Unit for Full Body Immersion, is a large metal tank, big enough so that an adult lying in it can stretch out to full length, can perform maximal abduction of both thighs and can abduct the extended arms through a wide range. It is intended to be mounted so that the bottom is considerably elevated above the floor of the room, say to the height of 1 meter, to facilitate the services of the physiotherapist.

The complete unit is shipped within two crates. Crate 1 contains the tank with base, electric hoist, trolley, head rest, water stretcher and body plinth. Crate 2 contains the tank base pipe legs with floor flanges, the stretcher cross bar and cables, the tank pipe fittings, two turbine ejector carriages, two electric turbine ejectors, two turbine motor covers, thermostatic water mixing valve assembly, two dial thermometers, body hammock canvas with brackets, canvas body sling and canvas for head rest. The dimensions of Crate 1 are 295 by 18 by 84 cm. (9 ft. 8 in. by 7 in. by 2 ft. 9 in.); Crate 2 measures 137 by 76 by 76 cm. (4 ft. 6 in. by 2 ft. 6 in. by 2 ft. 6 in.). The combined shipping weight of the two crates is 680 kg. (1500 lbs.).

The Council obtained evidence that this tank unit is well constructed, of satisfactory size and shape to permit hydrotherapeutic procedures to the entire body. Treatment is facilitated by the fact that every part of the patient's body can be reached by the therapist. The motor-driven agitator itself produces a gentle massage, in addition to the manual massage that is possible in a tank of this sort. The tank can be cleaned easily after each treatment. Since both the agitator and the hoist are driven by electric motors, users are reminded that the instructions supplied by the firm regarding avoidance of shock hazards are to be carefully observed.

The Council on Physical Medicine voted to include the Ille Full Body Immersion Tank Unit, Model HM-801, in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

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SATURDAY, JULY 24, 1948.

EDITORIAL ANNOUNCEMENT

The compositors returned to work on Monday, June 28. This issue of The Journal has been prepared in part by the use of **Vari-Typer** machines.

MORE CONSIDERATION FOR THE FETUS

Not many years have passed since one took for granted that the human fetus is optimally protected and maintained in utero. Attempts were not made to influence the environment of the fetus, because whatever abnormalities developed were believed to be due either to intrinsic causes or, in a smaller number of instances, to extrinsic factors beyond comprehension or control. Syphilis was one of the few exceptions to this rule.

As has happened previously when a subject was ripe for exploration, numerous lines of research are now converging, as if by accident, on pathologic conditions of the fetus. Much valuable information has been acquired; now new and old knowledge can be assembled into a systematic scientific structure.[1] The field includes two mutually related parts, namely, abnormalities of development and diseases of the fetus.

Some recent advances from clinical studies are of immediate significance to the practicing physician: the concept of erythroblastosis as a result of isoimmunization and the occurrence of malformations in infants of mothers who contracted certain virus diseases during pregnancy.

The systematic study of hereditary and experimental malformations in animals, with the methods of descriptive and experimental embryology, has revealed direct information about the actual development of malformations. Prior to these studies speculation dominated consideration of the probable development of a given malformation known only in its final form. Now it is known that in the fetus, as in the adult, previously normal parts may degenerate in various ways which cannot possibly be detected by examination of the result. Congenital defects of the eyes, extremities, intestine or other parts of the body may originate in this manner.

As interest increases in the systematic examination of newborn infants at necropsy, many instances are found in which changes comparable to those in diseases of the adult have occurred before birth. Degeneration, inflammation and scarring occur in the heart, liver, pancreas, kidneys and other organs of fetuses. The greatest handicap in the interpretation in these cases is the inadequacy of the history obtainable from the mother or her physician. Just as physicians have learned recently to inquire about the occurrence of rubella during pregnancy, other significant factors in the history of abnormal newborn infants will doubtless be recognized in the future.

Most of the recent progress from the study of abnormal development in animals and pathologic conditions in newborn infants is not of immediate clinical significance. However, this information is essential for the shaping of a systematic knowledge which must be the rational basis of any progress in the care of the fetus. This is obvious particularly in the fields of mental deficiency and blindness, in which much preliminary work has been done.[2]

The fetus is not as well protected from unfavorable agents as was formerly believed. Nutritional deficiencies, poisons, infections and radiations may be involved. Cooperation of workers in various fields of biology and medicine will lead to more knowledge about these agents and to prevention of their effects. Among the members of the medical profession, pathologists and obstetricians are in key positions. The former should expand their facilities and interest with regard to newborn, as well as stillborn, infants. Obstetricians should supply more detailed information on the course of pregnancies resulting in abnormal infants and should also be prepared to plan the practical application of new results of fetal pathology.

THE BRITISH NATIONAL HEALTH SERVICE ACTS

A special representative meeting of the British Medical Association, held on May 28, adopted the following action:

(1) That, despite the insufficiency of the safeguards to the profession's freedoms and the misgivings of a substantial section of the profession, the Representative Body, anxious as ever that in the public interest a comprehensive health service should be made available to the community, is prepared to advise the profession to cooperate in the new service on the understanding that the Minister will continue negotiations on outstanding matters including terms and conditions of service for consultants and specialists, general practitioners, public health officers and others.

Rider

That the medical profession should accept service under the Act on the understanding that in the event of the amending Act and terms of service being unsatisfactory to the Representative Body, members serving under the Act should then hand in their

1. Warkany, J.: Etiology of Congenital Malformations: Advances in Pediatrics 2:1, 1947. Gruenwald, P.: Mechanisms of Abnormal Development, Arch. Path. 44:398 (Oct.) 1947.

2. Gruenwald, P.: Mental Deficiency of Prenatal Origin: a Challenge to Preventive Medicine, Am. J. M. Sc. 214:605 (Dec.) 1947.

resignations or take such other steps as are considered necessary by the Representative Body.

(2) That the Representative Body urges the profession to maintain its strength and unity in order to mould the service in accordance with the public interest and with enlightened professional opinion and continuously to protect the profession's legitimate freedoms and interests.

According to notices recently published in American newspapers the dental profession in Great Britain still refuses to cooperate with the British government under the act.

In the course of negotiations the British medical profession has succeeded in securing from the Minister of Health a bar on the introduction of a whole time salaried service by regulation and a universal basic salary. The medical profession has failed to secure concessions on questions of the ownership of good will in a doctor's practice and the right of appeal to the courts from decisions of the Minister. The Council of the British Medical Association is convinced that some progress has been made but also that the freedoms of the profession are not sufficiently safeguarded. Under recent decisions the Catholic and other denominational hospitals in Great Britain are freed from participation in the government plan and will not be taken over by the British government as are community hospitals.

The British experiment in socialization of medical practice appears to be a top heavy organization to administer a personal service. The act becomes effective on July 5, and the medical world will watch with interest whether or not this experiment develops any hope of success in achieving its objectives or even in improving on what Britain has had in the way of medical service.

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Current Comment

INDEX NUMBER

In this issue of THE JOURNAL appears the Index for Volume 136 of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION covering January, February, March and April. This index should have appeared in THE JOURNAL of April 24, but it was impossible to publish it at that time because of difficulties with the compositors who were not at work. The Index is paged to follow immediately the material that ended Volume 136, and may be bound with the volume so as to make it complete.

ARTHRITIS AND RHEUMATISM FOUNDATION

Elsewhere in this issue appears an anouncement of the completion of negotiations which have been going on for some time toward consolidating into a single organization the leading agencies in the attack on rheumatic conditions, including the American Rheumatism Association, the National Arthritis Research Foundation, the Detroit Fund for Crippling Diseases and other groups that have been devoted to combating arthritis. As will be observed, the board of directors of the new Foundation thus far selected represent leaders in industry, philanthropy and medical science whose names carry confidence. The Foundation is organized along the lines of similar groups such as the National Foundation for Infantile Paralysis, the American Cancer Society and the American Heart Association, and it proposes to function in a similar manner. Its objectives include surveys of the problem, graduate education of the medical profession, education of the public, research, fellowships and improved care for those with rheumatic disease. Complete cooperation with the medical profession through county and state medical societies indicates recognition of the importance of medical cooperation in achieving the ends that are sought. The objectives indicated, the persons interested and the approach to the problem merit the support of the medical profession and the public.

THE WORLD MEDICAL ASSOCIATION

Since its organization in Paris in September 1947, the World Medical Association has made great strides. At present the national medical societies of twenty-six nations are members; applications from sixteen more nations are under consideration for admission to membership. The objectives of the World Medical Association have been stated previously in THE JOURNAL. The promotion of closer ties among the national medical organizations and the physicians of the world, the maintenance of the honor and dignity of the medical profession, mutual consideration of professional problems of the medical profession in the different countries and exchange of information on matters of interest to the medical profession, the establishment of proper relations with similar groups (such as the World Health Organization, the United Nations Educational, Scientific and Cultural Organization), improvement of health throughout the world, and the promotion of world peace are aims which merit the support of every physician. At this time through the office of the general secretary, Dr. Louis H. Bauer, surveys are in process concerning the status of the physician in different countries of the world, the standards of medical education, the qualifications and rating of specialists, the extent of recognition of cultist practice, and the advertising of medical products. Also in process of development is a bulletin to be issued periodically reporting the results of the studies that have been mentioned. In the United States a committee has been established to aid the work of the World Medical Association. Since the problems are such as will interest every physician who participates in civic and in medical affairs, opportunity is offered to individual physicians to become Founder Sustaining Members of the World Medical Association. The annual membership dues are $10. Many physicians are subscribing for five years in advance in order to place the World Medical Association promptly on an established basis. Individual members will receive the bulletin of the World Medical Association and certificates of membership in the United States Committee. Many medical organizations such as the American Medical Association and the International College of Surgeons have become associated through organizational memberships and are represented on the Board of Directors of the United States Committee. Many of the great medical industries have

indicated their approval by substantial contributions. The House of Delegates of the American Medical Association has given its complete endorsement to this project. Physicians who wish to affiliate with the United States Committee of the World Medical Association may do so by addressing the World Medical Association at its permanent offices in New York City at 2 East 103rd Street. Thus they will share in a worthy cause and thus also they will have opportunity to keep abreast of the manner in which physicians throughout the world are joining to sustain the ethics and the ideals that have animated the medical profession for thousands of years.

RAILROAD TOILET WASTES

The Association of American Railroads requested its Joint Committee on Railway Sanitation to investigate the nature and quantity of toilet wastes discharged from railway passenger cars in both local and transcontinental service. The health problems developed by disposing of excreta on passenger-carrying cars along railroad rights of way and terminals have been studied for many years. The committee formulated a program of investigation and research which was approved by the United States Public Health Service. Studies were made first in several passenger cars of the New York to-Washington and Chicago-to-Washington runs and later in passenger cars in transcontinental services.[1] Observations were made during August, September, October and early November, 1946. Local service data were obtained from a total of thirty separate runs, during which time the toilet habits of 2,000 persons were studied over a total of 6,261 passenger hours and 320,000 passenger miles. Frequency of toilet use, maximum duration of toilet occupancy and frequency of toilet flushing were measured. Total toilet wastes were collected in sealed containers, carried underneath the cars, and the contents studied for dry weight of solids, strength of sewage as compared to ordinary domestic sewage and estimated quantity of sewage spread per mile of track. The last figure averaged 0.00235 pound (dry weight) of sewage solids per mile for a single run. Applying the data to the Pennsylvania Railroad's run between New York and Washington, which is believed to carry the heaviest passenger traffic in the United States, it was estimated that approximately 276,000 pounds (dry weight) of sewage solids were spread per year along 226 miles of road bed, or 0.694 pounds of dry weight per yard per year. For the country as a whole, assuming that passenger coaches travel one billion miles per year, the average estimate is 0.302 ounce on a wet basis per yard of track per year. Collected wastes were tabulated also for the presence of foreign objects. In addition to the usual material found in toilet wastes, foreign objects included men's handkerchiefs, miniature whisky bottles, beer bottles, cigaret packages, cigars and butts, orange peelings and in several cases, women's purses. Bacteriologic or culture studies are not included in this report. However, the communicable disease hazards in this situation are easily apparent. Such hazards would certainly occur during epidemic situations when healthy carriers of epidemic disease might be among passenger groups. The most obvious example of this, of course, would be the spread hazard from endemic or localized epidemic typhoid or dysentery outbreaks through deposit of carrier excreta in streams, water courses and swimming holes along railroad rights of way. In view of the known high virus content in the feces of poliomyelitis patients, convalescents and carriers, a similar epidemiologic hazard in this disease must be considered.

1. Technical Report 3 (March 1, 1947) and Supplementary Report, 4 (December 1947): Report on an Investigation into the Use of Railway Passenger Car Toilets and the Nature and Quantity of the Toilet Wastes, by Sanitation Research Project, Joint Committee on Railway Sanitation of the Association of American Railroads, Operations and Maintenance Department.

FOLIC (PTEROYLGLUTAMIC) ACID AND THE ANTI-PERNICIOUS ANEMIA FACTOR IN LIVER

The observations that folic (pteroylglutamic) acid will control the hematologic symptoms in most cases of pernicious anemia and certain other macrocytic anemias but will not control the neurologic symptoms, as does liver extract, have been reported by several investigators including Spies and his co-workers.[1] These results led the Alabama investigators to conclude that liver extract contains an unknown factor or factors other than folic acid essential for maintaining the integrity of the central and peripheral nervous system in pernicious anemia and, therefore, that folic acid does not replace liver extract in the treatment of pernicious anemia. The foregoing observations also serve to emphasize the incomplete understanding of the functions of folic acid in the organism and its relation to the active principle in liver. The excretion of phenolic substances in the urine is increased in patients with pernicious anemia, and adequate therapy with liver extract reduces the amount toward normal values.[2] This observation in patients may be related to the observation in folic acid-deficient experimental animals that the ability of the liver to oxidize the phenolic substance tyrosine is impaired.[3] Other

1. Vilter, C. F.; Vilter, R. W., and Spies, T. D.: J. Lab. & Clin. Med. 32: 262 and 1426, 1947.
2. Swendseid, M. E.; Woodruff, B., and Bethell, F. H.: J. Lab. & Clin. Med. 32: 1242, 1947.
3. Rodney, G.; Swendseid, M. E., and Swenson, A. L.: J. Biol. Chem. 168: 395, 1947.

experimental studies also indicate a general fundamental role of folic acid in the organism in addition to its effect on hemopoiesis, as is manifest by its probable stimulating effect on the production of certain metalloporphyrin cellular enzymes,[4] by its effect in preventing cervical paralysis in young turkeys,[5] by its alleged effect of inhibiting the growth of certain neoplasms[6] and, in patients with sprue, by its favorable effect on absorption from the gastrointestinal tract of such important nutrients as vitamins A and E and even dextrose.[7] The prediction seems warranted that further extension of studies such as those mentioned will lead to the eventual elucidation of the question regarding the relation between folic acid and the active anti-pernicious-anemia factor in liver extract.

PROTHROMBIN OR "PROTHROMBIN COMPLEX"

Investigators agree that in the process of blood coagulation thromboplastin acting on prothrombin in the presence of calcium forms thrombin, which in turn causes fibrinogen to change to fibrin. Following the separation of these chemical principles into concentrates it was recognized that the reaction between purified substances took place much more slowly than does the reaction in blood plasma.[1] This difference in reaction rate is attributable to the presence of additional substances in blood plasma. In their work with these additional factors one group of workers[2] in this country has chosen to refer to them as part of a "prothrombin complex," with the apparent assumption that for a maximum rate of coagulation these different components must be present in certain limiting concentrations. Other workers prefer to consider these additional factors as accelerators of the original reaction by which a single substance, prothrombin, is changed to thrombin. The accepted interpretation, it would seem, should depend on the extent to which these substances unite to become part of the thrombin molecule; if they all unite in significant amounts to form thrombin, they should be considered as a complex; but if the thrombin consists essentially of a slightly modified form of one of them, this should be considered to be the single prothrombin. The correct interpretation thus becomes dependent on the chemical isolation of the principles concerned and the study of their composition and mode of interaction. Such studies have already been carried out; the isolation of prothrombin from plasma in high yield, apparently as a single component, and its activation to thrombin[3] would appear to show that this is the precursor of thrombin and that other substances may be looked on as accelerators. Accelerators of the prothrombin reaction have been reported by various investigators, but because of differences in procedures employed it is difficult to determine the extent to which these investigators may be dealing with the same substance. The precise delineation of the factors involved in blood clotting and their reactions with each other requires continued work in chemical fractionation, isolation and analysis.

4. Totter, J. R.; Stone, E., and Day, P. L. Proc. Soc. Exp. Biol. & Med. 66: 7, 1947.
5. Russell, W. C.; Taylor, M. W., and Derby, J. V.: J. Nutrition 34: 621, 1947.
6. Farber, S., and others: Science 106: 619 1947.
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1. Seegers, W. H.: Lancet 253: 669, 1947.
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HEBERDEN'S NODES

Heberden, widely known for the eponymic "Heberden's nodes," according to Stecher[1] dispelled the notion prevalent up to this time that these bony enlargements were due to gout. The nodes are now regarded as the most benign form of osteoarthritis, readily recognized and characteristic of this general disease. Examination of the hands of some 7,000 unselected persons from Cleveland City Hospital, of visitors to the dispensaries of two general hospitals and of residents in several homes for the aged revealed that the incidence of both the traumatic and the idiopathic (not preceded by trauma) nodes increased with age.[1] The incidence of traumatic nodes was higher in men than in women, higher in manual workers than in physicians and higher in white manual workers than in Negroes. The differences in incidence of traumatic nodes between various groups of white persons seem to depend on differences in exposure of the fingers to trauma. The incidence of idiopathic nodes is universally low before the age of 60, after which it increases rapidly in white women. About one third of white women are affected if they live long. The condition never attains a high proportion in men. A study of hereditary tendency in a group of sixty-eight affected persons revealed that the mothers of affected women were affected twice as often, and the sisters of the affected women three times as often, as would have been expected in the normal population on the basis of chance alone. Apparently heredity plays an important role in the production of Heberden's nodes in these families. The trait appeared to be inherited as a simple dominant; it was probably recessive in men. Stecher did not find evidence that the production of idiopathic Heberden's nodes is influenced by climate, occupation, diet, housing, environment, habits of living, the general state of nutrition or conditions of health. Two conditions appear necessary for the development of idiopathic Heberden's nodes: a hereditary constitution and intact and normally functioning nerve supply to the hand and fingers. Heberden's nodes constitute a particular form of osteoarthritis with characteristics specific for this disease. Studies of the different forms of osteoarthritis may contribute to a greater knowledge of this common affliction.

1. Stecher, R. M.: Heberden's Nodes: The Clinical Characteristic of Osteo-Arthritis of the Fingers, Ann. Rheumat. Dis. 7:1 (March) 1948.

Woman's Auxiliary

OFFICERS

The national officers and chairmen of standing committees for 1948-1949 of the Woman's Auxiliary to the American Medical Association are as follows:

President—Mrs. Luther H. Kice, 95 Brook Street, Garden City, Long Island, N. Y.
President-Elect—Mrs. David B. Allman, 104 St. Charles St., Atlantic City, N. J.
Vice Presidents:
First—Mrs. Ralph Eusden, 4360 Myrtle Ave., Long Beach 7, Calif.
Second—Mrs. William W. Potter, 129 Kenesaw Ter., Knoxville, Tenn.
Third—Mrs. Lloyd C. Harvie, 417 Ardussi Ave., Saginaw, Mich.
Fourth—Mrs. Robert Flanders, North River Road, Manchester, N. H.
Treasurer—Mrs. Arthur A. Herold, 1166 Louisiana Ave., Shreveport, La.
Constitutional Sec.—Mrs. George Turner, 3009 Silver St., El Paso, Texas.
Directors:
One year—Mrs. Eustace A. Allen, 18 Collier Road, N. W., Atlanta, Ga.
Mrs. I. J. Bridenstine, P. O. Box 1475, Missoula, Montana
Mrs. U. G. McClure, 1592 Quarrier St., Charleston 1, W. Va.
Mrs. David S. Long, Harrisonville, Mo.
Two years—Mrs. James P. Simonds, 234 E. Pearson St., Chicago 11
Mrs. Jesse D. Hamer, 1819 N. 11th Ave., Phoenix, Ariz.
Mrs. Leo J. Schaefer, 700 Highland, Salina, Kansas
Chairmen of Standing Committees:
Finance—Mrs. Scott C. Applewhite, 240 Bushnell St., San Antonio, Tex.
Hygeia—Mrs. Ablace W. Hammond, 214 4th St., Beaver Dam, Wis.
Legislation—Mrs. Charles L. Shafer, 219 N. Sprague Ave., Kingston, Pa.
Organization—Mrs. Ralph Eusden, 4360 Myrtle Ave., Long Beach 7, Calif.
Publications—Mrs. James P. Simonds, 234 E. Pearson St., Chicago 11.
Program—Mrs. Harry F. Pohlmann, 29 Railroad Ave., Middletown, N. Y.
Public Relations—Mrs. Asher Yagoda, 61 Lincoln Pk., Newark 2, N. J.
Revisions—Mrs. Roscoe E. Mosiman, 2686 Magnolia Ave., Seattle 99.
Special Committee:
Reference—Mrs. Rollo K. Packard, 14093 Davana Ter., Sherman Oaks, Calif.
Historian—Mrs. Jesse P. Hamer, 1819 N. 11th Ave., Phoenix, Ariz.
Parliamentarian—Mrs. Alfred L. Madden, 44 S. Allen St., Albany, N. Y.

REVISIONS OF BY-LAWS

Revisions of the by-laws, which were presented to the House of Delegates at the twenty-fifth annual meeting in Chicago, June 1948, were adopted as amended. The sections revised will read as follows:

ARTICLE VI, SECTION 6 (constitution)

"To be eligible for election, succession or appointment as president, president-elect, first vice president or director, a member must have served (*a*) as president of the constituent state or territorial auxiliary by virtue of membership in which she is an active member of this Auxiliary, and in addition, (*b*) as an officer or as a chairman of a standing committee, or both, of this Auxiliary for at least two years."

CHAPTER II, SECTION 2 (by-laws)

"On the first day of the annual Convention, the Convention shall elect a Nominating Committee of seven members, two of whom shall be from the Board of Directors and five from the Body of Convention members. No more than two members of this Committee shall serve two years consecutively."

CHAPTER III, SECTION 3 (president-elect)

Insert between first and second sentences: "She shall serve on all Standing Committees as a member ex officio without the right to vote."

CHAPTER IV

Section 1—Item 5. Change the word Editorial to Publications; i. e., no. 5 of the Standing Committee will be the Publications Committee, instead of the Editorial Committee.

Section 8—"The Publications Committee shall consist, et cetera."

CHAPTER V—OFFICIAL PUBLICATION

"The official publications of the Auxiliary shall be the *Bulletin* published by the Woman's Auxiliary to the American Medical Association in which shall be published all official Auxiliary notices and transactions of the Convention and abstracts of the meetings of the Board of Directors, and such other periodicals as are authorized by the Advisory Council to the Woman's Auxiliary."

CHAPTER VII—CONSTITUENT AUXILIARIES

"Each constituent auxiliary shall transmit to the Treasurer of this Auxiliary not later than March 15 annually, dues amounting to one dollar for each of its members for the current year, which shall include subscription to the periodicals published by this Auxiliary when authorized by the Advisory Council to the Woman's Auxiliary."

CHAPTER X—POLICY

"All gifts presented to the Woman's Auxiliary must be accepted by the Board of Directors before being announced at the annual meeting."

FUTURE MEETINGS

The twenty-sixth annual meeting of the Woman's Auxiliary to the American Medical Association will be held in Atlantic City, N. J., June 6 to 10, 1949.

The dates of the Conference of State Presidents and Presidents-Elect and the National Chairmen of Standing Committees will be announced as soon as arrangements have been completed.

The registration of the 1948 meeting in Chicago was 841.

Washington Letter

(From Our Regular Correspondent)

July 20, 1948.

Increased Pay for Veterans Professional Personnel

The Veterans Administration announces that about 15,000 physicians, dentists and nurses on its payroll will receive a flat salary increase of $330 annually, retroactive to July 11. The raise was granted in order to give these professional workers, who are exempt from Civil Service provisions, the same treatment accorded other federal employees under the wage increase law enacted recently by Congress. The only Veterans Administration full time doctors to whom the raise will not apply are the relatively few receiving $11,000 or more per annum. Also excepted are member-employees in domiciliary homes, hospital residents, senior cadet nurses in training, part time specialists and consultants in hospitals.

United Mine Workers Extending Rehabilitation of Paraplegic Men

Washington headquarters of United Mine Workers of America disclosed the departure in mid-July of 13 more paraplegic coal miners for rehabilitative care on the West Coast. They entrained at Clarksburg, W. Va., for Permanente Hospital at Vallejo, Calif. Dr. R. R. Sayers, medical advisor of the United Mine Workers Welfare and Retirement Fund, said 75 paraplegic persons are now undergoing physical and vocational rehabilitation in West Coast institutions. To augment Eastern facilities, arrangements have just been completed for use of at least ten beds at the Postgraduate Medical School and Hospital in New York City, said Dr. Sayers. Also participating in the program are the Institute for Rehabilitation and Physical Medicine (New York University) and Lenox Hill Hospital, both in New York City, and the Newark (N. J.) Hospital for Crippled Children.

New Alaskan Medical Expedition Announced

A second medical expedition to Alaska, co-sponsored by the Department of Interior and the American Medical Association, will spend most of August in the Territory. Its members are Drs. John E. Tuhy and W. Charles Martin, of Portland, Ore., and Frank Douglas and David Law (dentist), of Seattle, Wash. The team will give diagnostic and treatment services.

Pan-American Sanitary Bureau Receives Aid

The Pan-American Sanitary Bureau has received a check for $222,000 from Mexico to be applied toward its expanded program of disease control, teaching and medical research in the American republics. Of the sum, $22,000 is Mexico's regular quota payment and the remainder is an extra contribution. Brazil, Argentina and other Latin American countries have voted to make similar contributions, but Mexico's is the first to be received.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Albert, M.....Brooklyn
Alm, T.E.....Huntington Park, Calif.
Alper, J.....Bronx, N.Y.
Amador, L.V.....Las Cruces, N. Mex.
Andrus, R.S.....Spanish Fork, Utah
Atwood, A.S.....East Hartford, Conn.
Avvocato, R.A.....Brooklyn
Baker, J.J.....Gettysburg, Pa.
Ballard, W.R.....Beckley, W. Va.
Bartley, W.D.....Indianapolis
Batson, B.E.....Poplarville, Miss.
Battey, A.M. Jr.....Augusta, Ga.
Bauersfeld, S.B.....Bethesda, Md.
Bentley, M.D.....Huntington Woods, Mich.
Berman, J.R.....New York
Bilder, M.....Pittsburgh
Bills, J.W.....Philadelphia
Bishoff, R.J.....Wilkinsburg, Pa.
Bishop, H.C.....Great Neck, N.Y.
Bishop, T.E.....Minoa, N.Y.
Black, C.J.....Chicago
Blank, W.A.....Franklin, Neb.
Blumberg, J.D.....Brooklyn
Blumenthal, I.....Royston, Ga.
Boeshart, C.B.....Danville, Ohio
Boland, C.R.....Johnson City, N.Y.
Boldt, T.H.....St. Louis
Bondi, R.G.....Rochester, N.Y.
Boswell, R.W.....Evansville, Ind.
Bowers, C.H.....Newton Highlands, Mass.
Boyd, E.F. Jr.....Hollywood, Calif.
Boyd, J.A. Jr.....Atkinson, N.C.
Boyle, J.P.....Washington, D.C.
Brady, H.S.....Wichita, Kan.
Brannen, J.H.....Moultrie, Ga.
Brofman, B.L.....Cleveland Heights, Ohio
Brown, P.F. Jr.....Gainsville, Ga.
Brown, R.L.....Snyder, N.Y.
Bryan, J.T.....Meridian, Miss.
Burke, G.E.....New York
Burnett, G.R.....Sherrill, N.Y.
Calder, K.T.....Flint, Mich.
Campbell, B.H.....Charles City, Iowa
Canavarro, K.S.....New York
Carlisle, D.....Birmingham, Ala.
Carlson, H.C. Jr.....Pittsburgh
Carney, R.P. Jr.....St. Louis
Carroll, H.B.....North Seattle
Casady, R.H.....Oklahoma City
Casale, J.B. Jr.....Essex Fells, N.J.
Casden, D.D.....Brooklyn
Catania, A.F.....Brooklyn
Cernock, W.F.....Chicago
Chanatry, A.G.....Utica, N.Y.
Chang, D.J.....Honolulu, Hawaii
Chase, R.E.....Chicago
Chester, R.V.....Syracuse, N.Y.
Clarke, O.W. Jr.....Petersburg, Va.
Clayton, E.C.....Winston-Salem, N.C.
Collier, H.S.....Louisville, Ky.
Connor, J.....Quincy, Mass.
Copeland, H.B. Jr.....Wheeling, W. Va.
Cornelison, J.L.....San Angelo, Texas
Cosgrove, G.E. Jr.....South Bend, Ind.
Cotter, P.B.....Buffalo
Cousin, D.B.....McKeesport, Pa.
Covart, G.T.....Sanford, Fla.
Cox, W.H.....Richmond, Va.
Cramp, L.L.....Scarlet's Mill, Pa.
Crandall, R.G.....Salt Lake City
Crothers, C.H.....Framingham, Mass.
Crow, E.W.....Wichita, Kan.
Crumbley, J.J.....Sylvester, Ga.
Culp, D.A.....Sunbury, Pa.
Cummings, M.H.Jr.....Williamstown, W. Va.
Dale, W.A.....Columbia, Tenn.
Dammers, W.R.....Oak Park, Ill.
Davis, C.....San Francisco
Davis, H.G.Jr.....Sylvester, Ga.
D'Errico, F.J.....Brooklyn
Dersch, W.H. Jr.....Oklahoma City
Dolin, G.....Brooklyn
Doncaster, R.M.....Jeanette, Pa.
Dourmashkin, L.R.....New York
Dufford, C.A. Jr.....Newberry, S. C.
Dworin, M.S.....New Britain, Conn.
Eagles, W.McC.....Fountain, N. C.
Eberlein, W.R.....Shawano, Wis.
Eckert, R.T.....Englewood, N. J.
Eder, W.P.....Minneapolis
Ehrlich, L.....Chicago
Ellis, E.LeR.....Cheyenne, Wyo.
Ellis, J.B.....Belvidere, Ill.
Ellison, E.H.....Columbus, Ohio
Ferrell, H.W.....Chicago
Feldman, S.I.....Minneapolis
Fergusson, R.C.....Kulm, N. D.
Figley, M.M.....Toledo, Ohio
Fine, L.J.....Detroit
Fine, S.....Philadelphia
Fink, A.I.....Brooklyn
Fink, W.J.....Washington, D. C.
Finken, W.S. Jr.....Brooklyn
Fisher, J.A.....Asbury Park, N. J.
Fleming, W.C.....Yorktown, Va.
Fontes, R.J.....Cranston, R. I.
Foster, J.E.....Mobile, Ala.
Fox, W.P.....Oak Park, Ill.
Fritz, H.C.....Bunker Hill, Ill.
Gadbaw, J.J.....Utica, N. Y.
Gallagher, J.C.....Rossford Wood, Ohio
Gambescia, J.M.....Philadelphia
Gans, S.L.....Cleveland Heights, Ohio
Garcia, A. Jr.....Port Washington, N.Y.
Garnjobst, W.N.....Corvallis, Ore.
Gettings, T.H.....Warren, Pa.
Gainsiracuse, J.E.....San Francisco
Gleason, E.A.....Camden, N.Y.
Glod, A.P.....Castle Hayne, N.C.
Glovatzky, W.J.....Seattle
Goerner, P.G.....West Burlington, Iowa
Golia, U.V.....New Haven, Conn.
Gonwa, W.J. Jr.....Chrisman, Ill.
Gottnick, L.T.....Chicago
Grabiak, C.F.....Rillton, Pa.
Greifenstein, F.E.....Union, N.J.
Gundel, R.E.....Columbia, Pa.
Guze, S.B.....New York
Haft, D.E.....Framingham, Mass.
Halsey, H. II.....Montclair, N.J.
Hankins, G.S.....Hampton, Va.
Hardwig, R.P.....Waverly, Iowa
Harrington, R.R. Jr.....Maquoketa, Iowa
Harris, J.F.....New York
Hartjen, J.K.....Detroit, Mich.
Hass, F.M.....Minneapolis
Hatchfield, H.J.....Great Neck, N.Y.
Hatteraley, P.G.....Pasadena, Calif.

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Hawkins, J.F. Jr.....Baltimore
Hay, H.S.....Somerset, Pa.
Henry, W.G.....Toledo, Ohio
Hershkowitz, M.....New York
Herweg, J.C.....Springfield, Mo.
Hess, F.M. II.....Bangor, Pa.
Hiltz, L.T.....Covington, Ky.
Hoffman, J.B.....Brooklyn
Hoffman, S.H.....Terre Haute, Ind.
Hollan, O.R.....Sinton, Texas
Holmes, C. DuV. Jr.....Indianapolis
Hoover, R.D.....Oklahoma City
Horkins, E.J.....Detroit
Huber, P.J.....Detroit
Hughes, J.P.....Wilkinsburg, Pa.
Hughes, L.R.....Philadelphia
Humphries, J.M.....Altoona, Ala.
Hunter, R.C.....Chippewa Falls, Wis.
Imperiale, A.F.....New York, N.Y.
Jackson, J.L. III.....Wichita Falls, Texas
Jacobs, L.G.....Indianapolis, Ind.
Jacques, S.A.....Baldwin Park, Calif.
Janda, R.W.....Chicago
Janelli, D.E.....Great Neck, N. Y.
Jarvis, D.F.....Clintonville, Wis.
Joffe, I.....New Orleans, La.
Johnson, N.J.....Brooklyn, N. Y.
Johnson, P.D. Jr.....Terre Haute, Ind.
Johnston, M.LeS.....Glendora, Calif.
Jolly, W.H.....St. Charles, Mo.
Jones, S.N.....Rockville, Md.
Juhnke, L.W.....Detroit, Mich.
Kable, W.T. Jr.....Pittsburgh
Kahn, A.J.....Chicago, Ill.
Kavka, J.....Chicago
Kehoe, J.M.....Eden Valley, Minn.
Kell, J.F. Jr.....Lawrence, Kan.
Khedroo, L.G.....Chicago
Kiddie, T.....Pasadena, Calif.
Kirk, D.A.....Salt Lake City
Kirkpatrick, O.F.....Dallas, Texas
Klavon, R.J.....Pittsburgh
Kleh, J.....Washington, D.C.
Kleinschmidt, R.F.....Pittsburgh
Klinger, L.....New Orleans
Kinseley, R.M.....Swissvale, Pa.
Kochevar, G.J.....Leavenworth, Kan.
Kopp, E.A.....Summit, N.J.
Koury, G.E.....Burlington, N.C.
Krusen, E.M.....Drexel Hill, Pa.
Kuhn, R.A.....Oakland, Calif.
Lamp, J.C.....Ventnor City, N. J.
Lenahan, P.J.....Wilkes-Barre, Pa.
Lentini, V.....Shively, Ky.
Lerblance, W.P. Jr.....Checotah, Okla.
Leuallen, E.C.....Cape May, N. J.
Lewis, S.M.....Newark, N. J.
Linkins, C.H. Jr.....Louisville, Ky.
Lindgren, V.V.....Winnebago, Minn.
Linss, W.P.....Dayton, Ky.
Lippitt, W.H.....Baltimore, Md.
Lockwood, C.C.....Chicago, Ill.
Lowery, J. McC.....Columbus, Ohio
Lowry, D.M.....Oklahoma City, Okla.
Luce, R.R.....Moscow, Idaho
Lunn, W.W.....Olney, Tex.
McCall, J.W. Jr.....Memphis, Tenn.
McCanna, P.H.....Burlington, Wis
McCarty, C.P.....Helena, Ark.
McClellan, W.A.....Lakewood, Ohio
McDougal, B.B.....Hale Center, Tex.
McGarity, W.C.....Jersey, Ga.
McNatt, W.M.....Naples, Tex.
MacBride, R.G. Jr.....Orleans, Mass.
Magruder, W.W.....Starkville, Miss.
Maher, R.W.....Washington, D.C.
Malley, C.G.....Oakland, Calif.
Maltinsky, M. M.....Rochester, N.Y.
Mancini, A.J.....Batavia, N. Y.
Manning, H. J.....Milwaukee
Marks, A. R.....Clarksburg, W. Va.
Martin, J. C. Jr.....Iredell, Texas
Martin, J.G.....Dallas, Tex.
Martin, R.A.....Glasgow, Ky.
Mascia, A.J.....Bronx, N. Y.
Mascia, A.V.....New York, N. Y.
Massey, C. McD.....Augusta, Ga.
Masters, V. E.....Fort Lauderdale, Fla.
Mayer, E. C. Jr.....Butte, Mont.
Mednick, H.....Woodside, L. I., N.Y.
Meinecker, R. L.....Albany, N.Y.
Mellins, H. Z.....Brooklyn
Meredith, D. T.....Phoenix, Ariz.
Merrill, H. R.....San Diego, Calif.
Merrill, L. G.....Pocatello, Idaho
Merritt, E. G.....Chicago
Meyer, J. G.....Springfield, Ill.
Michelson, M. S.....Los Angeles
Milani, G. E. Jr.....New York
Miller, D. E.....Kingman, Kan.
Miller, E. V.....Salina, Kan.
Miller, O. W.....Rushville, Neb.
Minczewski, R. C.....South Bend, Ind.
Mishkin, S.....Brooklyn
Mitchell, A. D.....Topeka, Kan.
Mitchell, W. E.....Bryson City, N. C.
Molano, C. E.....New York
Monsour, K. J.....Philadelphia
Moore, G. D. Jr.....Shreveport, La.
Morgan, C. H.....New York
Morrison, L. E. II.....Indianapolis
Morrissey, W. J.....Lovillia, Iowa
Moser, J. M. Jr.....Washington, D. C.
Nanay, E. M.....Charleston, W. Va.
Narrett, S. S.....Prassaic, N. J.
Nelson, J. J.....Portland, Ore.
Nickerson, R. W.....Pittsburgh
Noller, H. W.....Topeka, Kan.
Noshpitz, J. D.....Bronx, N.Y.
Noziska, C. R.....Porterville, Calif.
Nunn, J. W.....Highland Park, Mich.
Nyman, R. D.....Chicago
Ochs, L. H.....Lebanon, Ill.
O'Dell, H. W.....Farmersburg, Ind.
Ogilvie, O. E.....Salt Lake City
Oliver, K. M.....Lynnhaven, Va.
Olshaker, B.....Washington, D. C.
Packer, R. M. Jr.....Greenville, S. C.
Palmer, R. I.....Cedar City, Utah
Pascoe, J. J.....Nevada, Mo.
Pearce, C. G.....Herber Springs, Ark.
Peck, R.D.....Montgomery, W. Va.
Penna, O.J.....Evanston, Ill.
Perkins, R.C.....Buffalo
Perrin, E.D.....Cameron, Texas
Pettit, V.E.....Des Moines, Iowa
Phillippi, G.M.....Camden, Ala.
Phillips, J.M. Jr.....Mount Vernon, N.Y.
Pike, W.H. Jr.....Hobart, Ind.
Pitt, L.P.....Trinity, Ala.
Plotz, C.M.....Brooklyn
Portner, J.H.....Philadelphia
Posin, H.I.....Brooklyn
Potts, W.A.....Buffalo
Pressant, H.M.....Buffalo
Price, R.A.....Phoenix, Ariz.
Quick, C.M.....Mansfield, Ohio
Quinn, W.E.....Culver City, Calif.
Radefeld, D. A.....Cleveland
Rado, E. A.....Indianapolis
Ramsdell, S. T.....Flandreau, S. D.

ARMY MEDICAL OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Rassohoff, W. ..... Cincinnati
Rapaport, S.I. ..... Los Angeles
Rebasz, R.J. ..... Rochester, N.Y.
Rees, R.L. ..... Salt Lake City
Reiman, B. ..... St. Paul
Reuter, F. T. ..... Washington, D. C.
Reiman, R. W. ..... Mokena, Ill.
Riser, A. F. ..... Atlanta, Ga.
Robinson, W. H. ..... Baltimore
Roedel, R. F. ..... North Seattle, Wash.
Rosenthal, M. ..... Cleveland Heights, Ohio
Ross, C. J. ..... Phillips, Maine
Ross, R. Jr. ..... New Orleans
Rove, E. B. ..... Dallas, Texas
Rudnich, J. H. ..... Brookline, Mass.
Rundquist, R. B. ..... Newman Grove, Neb.
Runge, W. F. ..... Ridgewood, N. Y.
Russo, J. N. ..... Hartford, Conn.
Rutledge, L. E. ..... Gilmer, Texas
Sagal, L.J. ..... New York
Schimmel, I. ..... Philadelphia
Schlesinger, M.R. ..... Pittsburgh
Schmidt, R.T. ..... Cincinnati
Schnepper, J.W. ..... Granger, Wash.
Seibel, G.W. ..... Chicago
Seibert, J.E. ..... Mansfield, Ohio
Seitz, P.F.D. ..... Danvers, Ill.
Severson, W.L. ..... Slater, Iowa
Sheilds, L.V. Jr. ..... Columbia, Ohio
Sheiman L. ..... New York
Shephard, J.E. ..... Chicago, Ill.
Shepp, M.D. ..... New York, N.Y.
Sheridan, J.J. ..... Providence, R.I.
Shillam, D.S. ..... Redondo Beach, Calif.
Shingleton, W. W. ..... Wilson, N. C.
Shipley, F.M. ..... Savage, Md.
Shorter, S.S. ..... Middletown, N.Y.
Shuman, B. J. ..... Atlantic City, N. J.
Shuttee, R.D. ..... El Reno, Okla.
Shuttleworth, J.E. ..... Avalon, N.J.
Siegel, A. ..... Philadelphia
Siegman, F. A. ..... Brooklyn
Silkman, R.J. ..... Roxbury, Mass.
Silver, M. L. ..... Chicago
Simms, B.F. ..... New Orleans, La.
Simonton, J. H. ..... San Francisco
Skillern, P.G. ..... South Bend, Ind.
Skinner, R. G. Jr. ..... Jacksonville, Fla.
Sleeter, R. L. ..... Medford, Ore.
Smith, B. G. ..... Washington, D. C.
Smith, I. G. ..... Columbus, Ohio
Smith, D.C. ..... Neodesha, Kan.
Smith, D.E. Jr. ..... Bonne Terre, Mo.
Smith, D.D. ..... Birmingham, Ala.
Smith, G.H. Jr. ..... Birmingham, Ala.
Smith, J.L. Jr. ..... Dubach, La.
Snyder, H. B. ..... Reading, Pa.
Snyder, O.E. ..... Ely, Minn.
Snyder, R.A. ..... Memphis, Tenn.
Sommerville, W.J. ..... Sharon, Pa.
Sorkin, M.L. ..... Flint, Mich.
Spaet, T.H. ..... New York
Spellman, F. A. ..... Mount Vernon, N. Y.
Spellman, G. G. ..... Woodward, Iowa
Spelsberg, W.K. ..... Clarksburg, W. Va.
Spiller, E.B. ..... Baton Rouge, La.
Spray, P.E. ..... Wilkinsburgh, Pa.
Starks, W. O. ..... Indianapolis
Steelman, G.M. ..... Oklahoma City
Steiger, W.A. 3d ..... Pittsburgh, Pa.
Steinberg, H. ..... Brooklyn
Steiner, M. ..... Far Rockaway, N. Y.
Steinhaus, J. E. ..... Madison, Wis.
Sterh, W. E. ..... La Crescenta, Calif.
Stevenson, N.D. ..... Asbury Park, N.J.
Stewart, R. L. ..... Indianapolis
Stewart, W. B. ..... Evanston, Ill.
Stewart, W.D. ..... Edgeworth, Pa.
Stillwell, D. L. Jr. ..... Detroit
Stout, J.J. ..... Xenia, Ohio
Strong, J.P. ..... Healdton, Okla.
Sullivan, J.R. ..... Buffalo
Supplee, J. F. III ..... Baltimore
Susskind, R.R. ..... Kew Gardens, N.Y.
Swank, R.E. ..... Columbus, Ohio
Taves, E. H. ..... New York
Taylor, F. M. ..... San Francisco
Taylor, E.D. ..... Halingen, Texas
Taylor, K.S. ..... Los Angeles
Tepper, W. R. ..... Lawrence, Mass.
Thomas, J.S. ..... Flushing, N.Y.
Thompsen, R. ..... Portland, Ore.
Thorpe, R.F. ..... Robinson, Ill.
Timrud, D. H. ..... Richmond Heights, Mo.
Todd, J.C. ..... Wildwood, N.J.
Todd, N.W. ..... Hickory Flat, Miss.
Tondra, J.M. ..... Canton, Ohio
Traitz, J.J. ..... Philadelphia
Treiser, H.T. ..... New York
Trent, L.W. ..... Knoxville, Tenn.
Troisi, J. G. ..... Brooklyn
Tucker, E. B. Jr. ..... Morgantown, W. Va.
Tucker, J. L. ..... New York
Tucker, S.M. ..... Chicago, Ill.
Tuckerman, W.W. ..... East Cleveland, Ohio
Turnbull, F.M. Jr. ..... Los Angeles
Turnbull, S.H. Jr. ..... Memphis, Tenn.
Tymeson, G.W. ..... Maine, N. Y.
Ulett, G.A. Jr. ..... Coquille, Ore.
Umann, J. W. ..... Brooklyn
Van Biber, J. T. ..... Kansas City, Mo.
Van Dam, H. ..... Hynes, Calif.
Vander Laan, C.A. ..... Chicago
Vander Ploeg, W.H. ..... Holland, Mich.
Van Portfliet, P. ..... Grand Rapids, Mich.
Vimont, R. T. ..... Tacoma, Wash.
Vinciguerra, P.L. ..... Chicago
Vitt, R. J. ..... San Francisco
Vogel, A. W. ..... Narberth, Pa.
von der Lieth, W.C. ..... Jersey City, N.J.
Waldron, J.F. ..... South Orange, N.J.
Walker, W. K. ..... Cedar Vale, Kan.
Wallace, P.F. ..... Kalamazoo, Mich.
Waters, R.A. ..... Alpharetta, Ga.
Watson, A.R. ..... Salado, Texas
Weigel, R.E. ..... Cincinnati
Weiker, J. ..... Denver
Weisberg, R.J. ..... Eloise, Mich.
Wellenbach, B.L. ..... Philadelphia
Wells, W.D. ..... Louisville, Ky.
Welt, S.M. ..... Brooklyn
Werblow, S.C. ..... Miami Beach, Fla.
Weyland, R. D. ..... Berkeley, Calif.
Weygandt, P. L. ..... Monroe Falls, Ohio
White, H. L. ..... Portland, Ore.
White, R. B. ..... Ennis, Texas
Whiting, W. H. ..... Antigo, Wis.
Whitson, R. O. ..... Houston, Texas
Wiking, L. F. Jr. ..... Casper, Wyo.
Williams, R. E. Jr. ..... Kinston, Ala.
Willison, C. H. ..... Waukesha, Wis.
Wilson, E. B. Jr. ..... New York
Wilson, P. D. Jr. ..... New York
Winn, E. H. Jr. ..... Winterville, Miss.
Winters, H. S. ..... Brooklyn
Witherspoon, F. G. ..... Nashville, Tenn.
Wolford, J. A. ..... Brookville, Pa.
Wood, F. H. ..... Red Bank, N. J.
Zbeutlin, A. ..... Jersey City, N. J.
Zimdahl, W. T. ..... Syracuse, N. Y.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

Workshop in Health and Safety Education.—Arizona's first Workshop in Health and Safety Education will be held at the State Teachers College, Flagstaff, August 2-14. The program is designed to assist teachers, administrators, school nurses and others interested in health and safety education, and to give them an opportunity to discuss such problems with consultants from several sections of the United States. The health education consultants are: Frank S. Stafford, of the United States Office of Education, Washington, D. C.; Dr. William W. Bauer, director, Bureau of Health Education, American Medical Association, Chicago; Miss Vivian Drenckhahn, New York, National Tuberculosis Association; Dr. Henry C. Schumacher, Cleveland, U. S. Public Health Service; Dr. Edith P. Sappington, San Francisco, of the U. S. Children's Bureau, and C. Mayhew Derryberry, Ph.D., San Francisco State College. Many organizations, both state and national, have cooperated in planning and preparing materials for the Workshop, which has become regional in character. Additional information may be obtained from the Registrar, Arizona State College, Flagstaff.

CONNECTICUT

Personal.—Dr. Carl E. Johnson, New Haven, has been appointed a member of the Connecticut Medical Examining Board to succeed Dr. George M. Smith, Pine Orchard, who has resigned after more than twenty-two years of service on the board. Dr. Johnson, a graduate of Harvard Medical School, Boston, 1926, is chief of obstetrics and gynecology at the Hospital of St. Raphael, New Haven, and chairman of the program committee of the state medical society.

First Class in Hospital Administration.—The immediate placement of eight students at the completion of the first year of Yale University's course in hospital administration demonstrates the need for this sort of training, officials of the university have reported. The course at Yale was established in the Department of Public Health with the aid of a grant from the W. K. Kellogg Foundation. Dr. Clement C. Clay, assistant professor of hospital administration, states that only one or two vacancies remain to be filled for the next course starting in September.

ILLINOIS

Dr. Sutton Made Chief of Division.—Dr. Charles F. Sutton has been appointed chief of the Division of Local Health Administration, Illinois Department of Public Health, to succeed Dr. Richard F. Boyd, who accepted a position with the Health and Welfare Fund of the United Mine Workers of America at Washington, D. C. Dr. Sutton, a graduate of Rush Medical College, served in the Army Medical Corps in World War II and has been with the state health department since January 1946.

Chicago

Personal.—Dr. William B. Wartman, Morrison professor of pathology and chairman of the department at Northwestern University Medical School, was recently appointed to the committee on pathology of the division of medical sciences, National Research Council.

Loyola University Receives Million Dollar Gift.—At the opening of Loyola University's medical-dental school drive June 15 at the Stevens Hotel, the university received a $1,000,000 gift from Frank J. Lewis, Chicago industrialist. Mr. Lewis' gift will be used to establish a trust which is expected to yield $50,000 a year for the medical school's operating expenses. He has also donated the site for the university's proposed Stritch School of Medicine in the West Side Medical Center.

Dr. Saunders Appointed Associate Director.—Dr. H. Prather Saunders, Chicago, was appointed an associate director of the American College of Surgeons, effective June 1. Dr. Saunders joined the staff of the college in March 1946, on his return from duty with the Medical Corps of the Navy. He is a councilor of the Chicago Medical Society, of which he was president in 1942, and a member of the council of the Illinois State Medical Society. He has been a member of the attending surgical staff of Ravenswood Hospital since 1930.

Public Lectures on Radiation.—Six free, public lectures on radiations and radioactive substances in biology and medicine are being given at the University of Chicago at 4:30 p. m. Wednesdays, July 7-August 11 in the Social Science Building (1126 East 59th Street), room 122.

July 7, Raymond E. Zirkle, Ph.D., Significance of Radiosubstances and High Energy Radiations in Biology and Medicine.
July 14, William Bloom, Effects of Radiation on the Cells of the Body.
July 21, Robert D. Boche, Ph.D., Effects of Radiation Exposure on Populations.
July 28, J. Garrott Allen, Care of Persons Exposed to Radiation.
August 4, Konrad E. Bloch, Ph.D., Techniques of Using Isotopes as Tracers.
August 11, James W. J. Carpender, Uses of Radioactive Substance in the Treatment of Disease.

INDIANA

Awards for Scholastic Leadership.—The three scholastic leaders in the 1948 graduating class of the Indiana University School of Medicine, Bloomington-Indianapolis, have been awarded medals by the Indiana State Medical Association. The awards this year were a gold medal to Dr. Richard A. Theye, Fort Wayne, now interning at the Indiana University Medical Center; silver medal to Dr. Martin H. Wortzel, Newark, N. J., now interning at Beth Israel Hospital, Newark, and bronze medal to Dr. Max E. Chervin, Philadelphia, intern at Michael Reese Hospital, Chicago.

New Department Heads.—The administrative reorganization program proposed for the Indiana University School of Medicine, Bloomington-Indianapolis, is nearing completion with the appointment of full time heads of the department of surgery and the new department of obstetrics and gynecology. Dr. Harris B. Shumacker Jr. has been appointed chairman of the department of surgery. Dr. Shumacker, formerly associate professor of surgery at Yale University School of Medicine, New Haven, assumed his new post on July 1. Dr. Carl P. Huber, a member of the staff for ten years, has been named chairman of the department of obstetrics and gynecology. The department was created earlier by the merging of the former division of gynecology with the department of obstetrics.

KENTUCKY

Narcotic Violation.—The Bureau of Narcotics, U. S. Treasury Department, reports that Dr. Azzie Z. Tucker, Fulton, pleaded guilty to violation of the federal narcotic code on April 19. His sentence of one year and one day was suspended, and he was placed on probation for three years on condition that he does not apply for registration under the federal narcotic law during the probationary period.

Dr. Underwood Appointed State Health Commissioner.—The State Board of Health of Kentucky has elected Dr. E. Bruce Underwood, Morganfield, state health commissioner and secretary of the state board of health, to succeed the late Dr. Phillip E. Blackerby. Dr. Underwood received his M.D. degree from the University of Louisville School of Medicine in 1937 and was in private practice until 1940. He served as health officer in Union, Webster and Henderson Counties from 1940 to 1946, and in the following year was health officer of Tallahassee, Fla. Since January 1948 he has been in private practice in the clinic which he built at Morganfield.

MISSOURI

State Medical Election.—At the meeting of the state medical association in St. Louis last Spring, Dr. William A. Bloom, Fayette, was elected secretary, and Dr. Charles E. Hyndman, St. Louis, treasurer, instead of Dr. Perry W. Jennings, Canton, who was named as secretary in THE JOURNAL, June 5, 1948, p. 552.

NEW YORK

State Society Selects Education Fund as War Memorial.—The Medical Society of the State of New York voted at its annual meeting in May to establish an education fund for the fifty-eight children of its thirty-two members who died in World War II. On the completion of his secondary school education each child will be given $600 per year if he pursues a collegiate and/or professional postgraduate course up to the age of 25 years if he remains unmarried. The estimated cost of the plan is $244,000. To meet the cost of the War Memorial a special assessment of $12 per member was approved by the house of delegates to be collected by the county societies within the year following the annual meeting. Since the termination of the war the society has been considering various plans for a suitable memorial to its deceased members and voted the educational fund as most appropriate.

New York City

The Romaine Fellowship.—Columbia University College of Physicians and Surgeons has received a bequest of $140,000 for medical research from the estate of the late C. Evaretta Romaine. The fund will be set up as the Dr. DeWitt C. Romaine Fellowship. Dr. Romaine, who died June 1, 1939, graduated from the College of Physicians and Surgeons in 1881.

Personals.—Dr. Frederick L. Liebolt, associate professor of orthopedic surgery, New York Hospital-Cornell University Medical Center, received the honorary doctor of laws degree at the University of Arkansas, Fayetteville, June 5.—Dr. I. Oscar Weissman has been appointed director of Sydenham Hospital, succeeding Dr. Sigmund L. Friedman, who resigned to take a position with the Mount Sinai Hospital, Cleveland. Dr. Weissman, a graduate of Long Island College of Medicine, 1932, has been associated with the U. S. Public Health Service.

Beach Waters Classified.—New York City beaches are being classified by the board of health as follows: Class A, or "approved beach waters" but subject to reclassification in light of continuing observation; class B beaches, "polluted beach waters," and class C, "unsafe beach waters." The records indicate that pollution at some of bathing beaches in the city is increasing and at some beaches may become dangerous for bathing or swimming. The action of the board does not affect that section of the Sanitary Code which forbids the operation of bathing establishments in certain areas, notably the shores of the Hudson, Harlem and East rivers, in Upper New York Bay, Jamaica, Sheepshead and Raritan bays, and parts of Arthur Kill and Kill Van Kull. The Sanitary Code restrictions in those areas continue unchanged.

PENNSYLVANIA

Expand State Society Headquarters.—The Medical Society of the State of Pennsylvania has purchased property adjacent to its present headquarters building in Harrisburg. The three-story building will relieve the present crowded situation and provide for an increase in the activities at the headquarters of the society, which has grown from 7,230 members enrolled when the present building was purchased in 1922 to 10,200 members.

Philadelphia

Personals.—Dr. Wilbur H. Strickland has been appointed medical director of the Mercy-Douglass Hospital, which was formally merged, by court decree, on March 11. Dr. Seymour S. Kety has been appointed professor of clinical physiology in the Graduate School of Medicine, University of Pennsylvania, effective July 1. Dr. Kety is at present assistant professor of pharmacology, University of Pennsylvania School of Medicine.

Dr. Hubbard to Direct Rheumatic Fever Program.—Dr. John P. Hubbard, Washington, D. C., has been appointed assistant professor of pediatrics at the University of Pennsylvania School of Medicine and will direct a rheumatic fever teaching program throughout Pennsylvania under the auspices of the state health department. Dr. Hubbard's work in rheumatic fever prior to the war, at Harvard Medical School and Children's Hospital, Boston, will continue at the University of Pennsylvania and at Children's Hospital, Philadelphia. He will simultaneously direct a nationwide program of the American Academy of Pediatrics for the improvement of child health from offices in the hospital. Dr. Hubbard has been directing a study of child health services for the academy. He is a graduate of Harvard Medical School, 1931, held a Rockefeller traveling fellowship to study pediatrics and public health in the United States, England and Germany in 1934, was staff physician at St. Lukes Hospital, Tokyo, in 1935, and studied rheumatic fever and heart disease on a Commonwealth Fund research fellowship in 1936-1937 at the House of the Good Samaritan, Boston.

TEXAS

Study of Poliomyelitis.—Columbia University College of Physicians and Surgeons and the Neurological Institute of New York City are cooperating with the University of Texas Medical Branch, Galveston, in a special study of poliomyelitis. Also cooperating is Baylor University College of Medicine, Houston, with Dr. Paul R. Harrington, associate professor of orthopedic surgery, participating. The investigation plans to devise satisfactory criteria for evaluating the neuromuscular status of poliomyelitis in patients. Clinical chemotherapeutic studies will be made with special reference to antibiotics and synthetic compounds which have been shown experimentally to have value against the virus of poliomyelitis. The cooperative research is under the direction of Dr. Murray Sanders, associate professor of bacteriology of the College of Physicians and Surgeons, Dr. Clifford G. Grulee Jr., assistant professor of pediatrics and director of the poliomyelitis unit of the University of Texas Medical Branch, and Dr. Saul R. Korey of the Neurological Institute, New York.

GENERAL

The Original "Cotton Hammer."—At the meeting of the American Association for the Surgery of Trauma in Chicago, June 18, Dr. Kellogg Speed, Chicago, presented to the association the original hammer used by Dr. Frederick J. Cotton, Boston, in the employment of his famous "artificial impaction of the hip" in the treatment of fractures of the neck of the femur. This gavel had placed on it a plate inscribed showing its origin.

Dr. Garrison Wins Cadillac at Meeting.—Dr. Harvey F. Garrison, Jackson, Miss., was the winner of a 1948 Cadillac club coupé presented by White Laboratories, Inc., pharmaceutical manufacturers, at the American Medical Association annual session in Chicago. Dr. Garrison, who operates a children's clinic in Jackson, is past president of the Southern Medical Association and Mississippi State Medical Association. Dr. and Mrs. Garrison cancelled their train reservations in order to drive the new Cadillac home.

Dr. Harrison to Head American Heart Association.—Dr. Tinsley R. Harrison, professor of medicine at Southwestern Medical College, Dallas, Texas, became president of the American Heart Association at its annual meeting in Chicago, June 18-19, succeeding Dr. Arlie R. Barnes, Rochester, Minn. Dr. Harold M. Marvin, New Haven, Conn., former executive secretary of the association, was chosen president-elect. Dr. Harrison is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1922, and has been at Southwestern Medical College since 1944.

Dr. Brick Wins Essay Contest.—Dr. Irving B. Brick, Georgetown University School of Medicine, Washington, D. C., won the eighth annual essay contest of the Mississippi Valley Medical Society "for the best unpublished essay on a subject of practical and applicable value to the general practitioner." His paper is entitled "Clinical Significance of Hiatus Hernia." Second prize goes to Dr. Franklin I. Shroyer, Dayton, Ohio, for his essay, "Cytological Diagnosis of Abnormal Growth in the Female Pelvis." Dr. Brick will receive a cash award and a gold medal. He will present his essay at the thirteenth annual meeting of the Mississippi Valley Medical Society in Springfield, Ill., September 29-October 1.

Traffic Deaths Rise in May.—The National Safety Council reports that traffic deaths went up in May, the first time in seven months, with an increase of 3 per cent over May of last year. The May death toll of 2,650 brought the year's total to 11,270, 5 per cent less than the 11,830 killed in the first five months of 1947. The Mountain states were chiefly responsible for the May increase with a 25 per cent jump in fatalities; Atlantic states had sharp increases also, while the Central states held even. Pacific states were the only ones to continue improvement. Although travel figures for May are not yet available, the council believes that a heavy increase in mileage may have been responsible for the rise.

Communicable Diseases.—The U. S. Public Health Service reports that the week ending July 3 was the sixth consecutive week in which no case of smallpox had been reported in the United States. For the week ending July 3, 29 cases of Rocky Mountain spotted fever were reported of which only 6 were in the Mountain States. Of 38 states reporting on rabies in animals, 21 reported no cases and of 17 states reporting cases the largest numbers were in Indiana (20), Texas (14), Michigan (10), Kentucky (8), and New York, Ohio, Florida and California (7 each). One case of anthrax was reported in each of the following states: New York, New Jersey and Pennsylvania, bringing the total to date to 38 cases, as compared with 28 of the corresponding period of last year.

Poliomyelitis Incidence.—The National Foundation for Infantile Paralysis reports high incidence of poliomyelitis for the four weeks ending June 12, during which 644 cases were reported throughout the country. Total for the first twenty-four weeks of 1948 was 1,446 cases reported, compared with 1,047 for the comparable period last year. Outbreaks continued in Texas, with 427 cases to June 12; North Carolina, 148 cases; Iowa, 58, and South Dakota, 21. Other states showing an increase in cases over the same period in 1947 include Indiana, with 28 as compared with 18 last year; Iowa, 52 against 14; New Jersey, 31 against 13; Oregon, 20 against 8; South Carolina, 13 against 4; Washington, 28 against 15; North Dakota, 110 against 18, and South Dakota, 21 against 2.

Cardiological Congress.—At the recent meeting of the Third Interamerican Cardiological Congress, Dr. Louis N. Katz, Chicago, was made permanent honorary president of the Interamerican Society of Cardiology. It was agreed that the Fourth Interamerican Cardiological Congress would be held in Buenos Aires in 1952. The First International Cardiological Congress will be held at some as yet undetermined place in Europe in 1950. Registration for the congress was 520 representing 170 active members and delegates and thirty-six countries. The proceedings and abstracts are to be published in the *American Heart Journal, Belgium Acta Cardiologica, Revista Argentina de Cardiologia* and *Archivas del Instituto de Cardiologia de México.*

The American Congress of Physical Medicine.—This organization will hold its twenty-sixth annual session September 7-11 at the Hotel Statler, Washington, D. C. All sessions will be open to members of the medical profession in good standing. In addition to the scientific sessions, the annual instruction courses will be held September 7-10. These courses will be offered in two groups: One set of ten lectures will be based primarily on physics and physiology and attendance will be limited to physicians; one set of ten lectures will be more general in character and will be open to physicians as well as to physical therapists. The physical therapists must be registered with the American Registry of Physical Therapy Technicians. Information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2.

Research Program on Human Reproduction.—The directors of the National Committee on Maternal Health have approved five applications for research in human reproduction made by the National Research Council. Grants total $21,918 for the first year. Scientists in charge of these studies and the titles of their research are: David W. Bishop, Ph.D., assistant professor of zoology, University of Illinois, Chicago—(1) radioactive phosphorus turnover in sperm; (2) effect of aging of sperm in male tract on oxygen consumption and glycolysis; G. E. Seegar Jones, instructor in gynecology, Johns Hopkins University School of Medicine, Baltimore—role of thyroid function in human reproduction; effect of thiouracil on the reproductive rate in rats; role of thyroid function in the human fetus; Doris H. Phelps, Ph.D., research associate, Vanderbilt University, Nashville, Tenn., who will conduct her project at the University of Witwatersrand, Johannesburg, South Africa—studies on endometrial vascular phenomena; Gregory Pincus, Sc.D., director of laboratories, Foundation for Experimental Biology, Worcester, Mass.—control of fertilization and of the early development of mammalian eggs; Boris B. Rubenstein, Michael Reese Hospital, Chicago—penetration and survival of sperm in the female genital tract.

The Arthritis and Rheumatism Foundation.—Dr. W. Paul Holbrook, Tucson, Ariz., has announced the formation of a foundation to promote the study of arthritis and other rheumatic conditions. The new foundation is sponsored by the American Rheumatism Association in cooperation with the National Arthritis Research Foundation, the Detroit Fund for Crippling Diseases, and others. Seven and one-half million persons in the United States are estimated to be afflicted with arthritis or related disorders. The medical policies and activities of the new foundation will be under the direction of a medical and scientific committee now being organized. The chairman of the board of directors is Floyd B. Odlum, Indio, Calif., president of the Atlas Corporation. The main objectives of the new foundation include a nationwide survey of what can be done to combat arthritis. It expects to: (1) develop, with the aid of the National Research Council, a research program designed to mobilize facilities of the nation's medical schools and of the basic sciences, in the search to discover the cause and methods for the prevention and cure of rheumatic diseases; (2) establish fellowships designed to increase the number of men qualified to conduct research and to specialize in the treatment of these diseases; (3) develop key centers throughout the country devoted to research, teaching and treatment, coordinated with medical schools; (4) promote a program of medical education to increase the appreciation of the profession as a whole of what can and should be done to bring effective treatment to patients with rheumatism; (5) foster the development throughout the nation of more adequate provision for patients with rheumatism, particularly in connection with the work of general hospital. Thirty-eight local chapters of the foundation will cover the entire nation. Chapters also will help integrate programs of investigation within their areas as well as raise funds for the purpose of financing such local programs and providing an equitable share of the funds needed to promote the national program of research as well as general educational and planning activities designed to support and increase the effectiveness of local efforts. In addition to Mr. Odlum and Dr. Holbrook, the president, the board of directors of the new foundation are:

Mr. Cyril H. Jones, Shelburne, Vt., former head of the Milton (Mass.) Academy, vice chairman and vice-president.

Mr. Hayden N. Smith, New York, member of the firm of Winthrop, Stimson, Putnam and Roberts, secretary.

Mr. James G. Blaine, New York, president, Marine Midland Trust Company of New York, treasurer.

Mr. David G. Baird, New York, of the insurance firm of Marsh and McLennan.

Dr. Walter Bauer, Boston, director of the Robert M. Lovett Foundation for Crippling Diseases and associate professor of medicine, Harvard University.

Dr. Ralph Boots, New York, director of the Edward Daniels Falkner Arthritis Clinic at Presbyterian Hospital and professor of clinical medicine, Columbia University College of Physicians and Surgeons.

Mr. A. B. Frey, St. Louis, attorney, and president of the National Arthritis Research Foundation.

Dr. Richard H. Freyberg, New York, associate professor of clinical medicine, Cornell University Medical College, and president of the American Rheumatism Association.

Mr. George L. Harrison, New York, chairman of the Board of New York Life Insurance Company.

Mr. H. J. McLaurin, Detroit, president of G. M. Underwriters, Inc. and general agent of Aetna Life Insurance Company, and trustee of the Detroit Fund for Crippling Diseases.

Mr. Frank Mandel, Chicago, Mandel Bros. Department Store.

Mr. Richard S. Reynolds, Richmond, Va., president of Reynolds Metal Company.

Dr. Charley J. Smythe, Plymouth, Mich., medical director, William J. Seymour Hospital, Eloise, Mich.

Dr. Robert M. Stecher, Cleveland, past president of American Rheumatism Association.

Mr. Howell Van Auken, Detroit, member of the law firm of Lucking, Van Auken, Schumann and Greiner, and trustee of The Detroit Fund for Crippling Diseases.

Mr. Charles B. Wrightsman, Houston, Texas, president, The Standard Oil Company of Kansas.

FOREIGN

France

International Congress on Sulfur.—This Congress will be held in Cauterets (High Pyrenees), France, September 13-15, under the patronage of the Minister of Public Health. Subjects to be reported include sulfur and the life of the cell, the detoxicating effect of sulfur, and sulfur deficiencies. In the medical section sulfur will be discussed in relation to endocrine glands, respiratory apparatus, voice, skin, liver, rheumatism, study of metabolism of sulfur in the organism, pyretotherapy with sulfur, arteries and nutrition.

Hungary

Hungarian Congress of Pediatrics.—The pediatric section of the Hungarian Medical Trade Union is organizing an International Congress of Pediatrics to be held in Budapest September 4-12. Two days of the congress will be devoted to plenary sessions of all the sections. Rheumatic fever, toxicosis and social significance and results of pediatrics will be discussed. All pediatricians are invited to participate, and those who wish to attend should communicate with the Centenary Congress Committee, Bokay Janos u. 53, Budapest 8, Hungary. Those desiring to take part in the discussion or to present a paper are requested to give the title and a short summary of the lecture.

CORRECTIONS

Graduate Course in Endocrinology.—In the list of graduate courses in Endocrinology in the June 19, 1948, JOURNAL, page 726, the date for the course sponsored by the American College of Physicians should have been November 1-6 instead of November 8-13. This course will be given at the LaSalle Hotel, Chicago.

Carcinoma of the Uterus, Ovary and Tube.—In the article by this title by Dr. Norman F. Miller in THE JOURNAL, Jan. 17, 1948, page 165, the last figure in column 3 of table 2 should be 23 instead of 36 and the last figure in column 5 of table 2 should be 9 instead of 12.

Dexedrine.—In THE JOURNAL, June 19, 1948, page 756, in reply to a query concerning "dexedrine," it was erroneously stated that "dexedrine" is the same substance as d-desoxyephedrine. "Dexedrine" is not d-desoxyephedrine. It is the dextrorotary isomer of amphetamine: 1-phenyl-2-amino-propane. There appears to be considerable confusion between these two drugs, doubtless due in part to the fact that they are related in chemical structure and are both dextrorotary.

Deaths

George Van Ingen Brown ● Milwaukee, died at St. Mary's Hospital April 2, aged 86, of carcinoma of the prostate. Dr. Brown was born in St. Paul on Jan. 15, 1862. He graduated from the Pennsylvania College of Dental Surgery, Philadelphia, in 1881, and from the Milwaukee Medical College in 1895. He practiced dentistry in St. Paul and Duluth from 1881 to 1898, then became professor of operative dentistry and oral surgery and dean of the dental department at Milwaukee Medical College. He was a special lecturer on oral surgery in the dental department at the University of Illinois, 1902-1903, State University of Iowa, 1903-1904, University of Tennessee in 1904, Vanderbilt University in 1905 and the Southern Dental College in Atlanta from 1909 to 1915. From 1904 to 1910 he was professor of oral surgery and pathology at the State University of Iowa. Dr. Brown was professor of oral and plastic surgery at the University of Wisconsin Medical School, Madison, from 1920 until he retired as emeritus professor in 1937. From 1915 to 1919 he served as first lieutenant, captain, major and lieutenant colonel in the medical reserve corps. During World War I he served in the Surgeon General's Office in Washington, in charge of the section of plastic and oral surgery; later he was in charge of plastic and oral surgery at General Hospital number 11, Cape May, N. J., and chief of the maxillofacial service at Walter Reed Hospital, Washington, D. C. In 1919 he was appointed surgeon in the U. S. Public Health Service and consultant in plastic surgery for the Bureau of War Risk Insurance. He was past president of the Milwaukee Academy of Medicine, Milwaukee Surgical Society and the Inter-State Post-Graduate Medical Association of North America. He was a member of the Pan American Medical Association, the Society of Plastic and Reconstructive Surgery, Société Scientifique Française de Chirurgie Reparatrice, Plastique et Esthetique, Paris, France, and honorary member of the La Societé Belge de Stomatologie and the Italian Physico-Chemical Academy of Palermo, Italy, a fellow of the American College of Surgeons and a specialist certified by the American Board of Plastic Surgery. In 1903 he was appointed as a delegate to the International Medical Congress in Madrid, Spain, and in 1911 was appointed to report on harelip and cleft palate before the International Medical Congress in Budapest. He served as secretary of the Section on Stomatology of the American Medical Association in 1897 and 1898 and from 1921 to 1924, and as chairman in 1898 and 1899 and member of the House of Delegates in 1902, 1907 and from 1909 through 1916. Dr. Brown was on the staffs of the Milwaukee County Hospital in Wauwatosa, State of Wisconsin General Hospital, Wisconsin Methodist Hospital, Wisconsin Orthopedic Hospital for Children and Madison General Hospital all in Madison, Veterans Administration Hospital in Wood, Columbia, Milwaukee Children's and St. Mary's hospitals in Milwaukee. In 1935 he was honored by the Boy Scouts with a silver beaver award, highest scouting award, for his services, and in 1938 was elected a member of the National Boy Scout Council, serving in that post until his death. Dr. Brown was the author of four editions of "Surgery of Oral and Facial Diseases and Malformations, Their Diagnosis and Treatment Including Plastic Surgical Reconstruction" and contributor to "The Cyclopedia of Medicine" and other publications.

Henricus Johannes Stander ● New York; born in Georgetown, Cape Colony, South Africa, June 21, 1894; Yale University School of Medicine, New Haven, 1921; professor of obstetrics and gynecology at the Cornell University Medical College; formerly associate professor of obstetrics at the Johns Hopkins University School of Medicine, Baltimore; specialist certified by the American Board of Obstetrics and Gynecology; member of the school board of Scarsdale; member of the American Gynecological Society, of which he had been vice president, and New York Obstetrical Society; fellow of the American College of Surgeons; in 1937 received the Order of Merit of Carlos Finlay in recognition of his services to Cuba; in 1947 received honorary M.D. degree from Trinity College, Dublin University; obstetrician and gynecologist in chief to the New York Hospital; author of "Toxemias of Pregnancy" 1929, "Williams Obstetrics" in 1936 and 1941, and "A Textbook of Obstetrics," 1945; died in Scarsdale, N. Y., May 2, aged 53, of coronary disease.

Alois Bachman Graham ● Ligonier, Pa.; born in Madison, Ind., Sept. 27, 1870; Medical College of Indiana, Indianapolis, 1894; professor emeritus of surgery (proctology) at the Indiana University School of Medicine, Indianapolis; president of the Seventh District (Ind.) Medical Society in 1913, the Indianapolis Medical Society in 1916, the American Proctologic Society in 1919 and the Indiana State Medical Association in 1931, of which he was a member; member of the House of Delegates of the American Medical Association in 1920 and 1921, and chairman of the Section on Gastro-Enterology and Proctology in 1928 and 1929; fellow of the American College of Surgeons; chief of the surgical staff of Base Hospital number 32 in France during World War I, serving for eighteen months in the medical corps; formerly on the staff of City Hospital; died in St. Margaret Memorial Hospital, Pittsburgh, April 5, aged 77.

John Tolson O'Ferrall ● New Orleans; born in Meridian, Miss., Aug. 18, 1885; Medical Department of Tulane University of Louisiana, New Orleans, 1908; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the Clinical Orthopaedic Society, Southeastern Surgical Congress and the American Academy of Orthopaedic Surgeons; formerly vice president of the Louisiana State Medical Society; fellow of the American College of Surgeons; served overseas during World War I; affiliated with the New Orleans Hospital and Dispensary for Women and Children, Lakeshore Hospital and the Southern Baptist Hospital, where he died recently, aged 62, of pneumonia.

Addison Carey Page ● Des Moines; born in New Sharon, Iowa, in 1874; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served as treasurer of the Iowa State Medical Society; past president of the Polk County Medical Society; from 1939 to 1945 member of the advisory state board of health; formerly on the faculty of the Drake University Medical Department; on the staffs of the Iowa Methodist and Iowa Lutheran hospitals; died in Mason City, Iowa, April 14, aged 73, of coronary disease.

Clifford Wilmot Mack ● Livermore, Calif.; born in Rawden, Ont., Canada, Dec. 16, 1884; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908; specialist certified by the American Board of Psychiatry and Neurology, Inc.; fellow of the American College of Physicians; member of the American Psychiatric Association; past president of the Alameda County Medical Association; served during World War I; consulting psychiatrist to the Samuel Merritt Hospital in Oakland and the Veterans Administration Hospital; medical superintendent of the Livermore Sanitarium; died March 31, aged 63, of coronary occlusion.

Thomas Ritchie Ponton, Yucaipa, Calif.; Manitoba Medical College, Winnipeg, Man., Canada, 1898; served as superintendent of the Hollywood Hospital in Hollywood, Calif., Illinois Masonic Hospital in Chicago and the University Hospital in Augusta, Ga.; at one time medical superintendent of the Vancouver General Hospital in Vancouver, B. C.; served with the Canadian Army during World War I; for many years editor and at the time of his death consulting editor of *Hospital Management;* died in Redlands April 2, aged 73, of cerebral hemorrhage.

Carles Harth Able, Norway, S. C.; University of Georgia Medical Department, Augusta, 1884; died March 28, aged 89.

Emil Amberg ● Detroit; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1894; member of the American Academy of Ophthalmology and Otolaryngology, and the American Otological Society, Inc.; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; consulting otologist at Grace Hospital and on the adjunct staff of Harper Hospital, where he died April 12, aged 79, of cerebral hemorrhage.

Edmund James Barnes ● Ossining, N. Y.; University and Bellevue Hospital Medical College, New York, 1909; served during World War I; died in Ossining Hospital March 23, aged 71, of perforated gastric ulcer and peritonitis.

Delbert Barney, Wilkes-Barre, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1887; member of the American Medical Association; past president and secretary of the Luzerne County Medical Society; served on the staff of Wilkes-Barre General Hospital; died March 20, aged 88, of acute congestive heart failure.

Joseph Baum, Woodmere, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1893; member of the American Medical Association; formerly consulting physician for the New York Board of Health; affiliated with St. Joseph's Hospital in Far Rockaway, where he was vice president of the Rockaway Savings Bank; died April 8, aged 78, of bronchopneumonia.

Louis Charles Benkert, Columbus, Ohio; Ohio Medical University, Columbus, 1897; formerly county coroner, police surgeon and physician for the Ohio Penitentiary; served on the board of education, of which he was president from 1915 to 1922; died April 4, aged 74, of cardiovascular disease.

Edward Percy Beverley ● Lieutenant Colonel, U. S. Army, retired, Broad Run, Va.; University of the South Medical Department, Sewanee, Tenn., 1899; also a graduate in pharmacy; served during World War I; entered the medical corps of the U. S. Army as a major on Dec. 2, 1920; retired Aug. 31, 1937 for disability in line of duty; died in the Walter Reed General Hospital, Washington, D. C., April 3, aged 72, of coronary thrombosis.

Mary Euphrasia Smith Briggs, Pawtucket, R. I.; Tufts College Medical School, Boston, 1894; died March 9, aged 84.

Theodore Prewitt Brookes ● St. Louis; Washington University School of Medicine, St. Louis, 1909; assistant professor of clinical orthopedic surgery at his alma mater; member of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; affiliated with the Evangelical Deaconess Home and Hospital, Barnes, St. Louis Children's and St. Louis Maternity hospitals; on the consulting orthopedic staff of the Lutheran Hospital, where he died April 1, aged 61, of cerebral thrombosis.

George Davies Chunn ● Colonel, U. S. Army, retired, Sarasota, Fla.; Johns Hopkins University School of Medicine, Baltimore, 1913; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; entered the medical corps of the U. S. Army in 1915 and retired Oct. 31, 1945; died in Tampa March 12, aged 59, of carcinoma of the prostate.

Frank Benjamin Converse ● West Willington, Conn. (licensed in Connecticut in 1894); past president of the Tolland County Medical Society; for three terms state representative; served as health officer; president of the medical staff of Johnson Memorial Hospital in Stafford Springs; died April 4, aged 82, of arteriosclerotic heart disease.

Joseph Stanley Cutler ● Wauwatosa, Wis.; Chicago Medical College, 1890; for many years health officer; served during World War I; affiliated with the Milwaukee County Hospital; died recently, aged 82, of chronic nephritis and pernicious anemia.

James Ernest Davis, St. Petersburg, Fla. (licensed in Florida in 1920); died March 19, aged 72.

Carl Vinton Davisson ● Williamsport, Ind.; Indiana University School of Medicine, Indianapolis, 1908; medical examiner for the county draft board and later an officer in the medical corps of the U. S. Army during World War I; served on the staffs of Lafayette Home Hospital and St. Elizabeth Hospital, Lafayette, where he died April 7, aged 67, of carcinoma of the pancreas.

S. James Deehan II, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1940; member of the American Medical Association; served during World War II; interned at the Memorial Hospital, where he served a residency; died April 6, aged 36.

Ernest Adolphus Dennard, Fort Smith, Ark.; Meharry Medical College, Nashville, Tenn., 1914; died April 1, aged 62, of coronary embolus.

Albert Eugene Dietrich, Bay Shore, N. Y.; Long Island College Hospital, Brooklyn, 1893; died March 23, aged 79, of neuritis.

Cova Roy Graham, Bourbon, Ind.; University of Louisville (Ky.) Medical Department, 1910; member of the American Medical Association; past president of the Marshall County Medical Society; died April 3, aged 62, of coronary occlusion.

Stilwell G. Meany ● East Troy, Wis.; Marquette University School of Medicine, Milwaukee, 1913; for many years president of the school board; on the staff of Walworth County Hospital in Elkhorn; died April 4, aged 57, of coronary sclerosis.

Harry Lewington Merryday ● Daytona Beach, Fla.; University of Louisville School of Medicine, 1914; past president of the Volusia County Medical Society; member of the Selective Service Advisory Board during World War II; member and past chief of staff of the Halifax District Hospital; past director of the chamber of commerce; died in the Riverside Hospital, Jacksonville, March 28, aged 63, of heart disease.

Lillian Morgans, Middletown, N. Y.; New York Medical College and Hospital for Women, Homeopathic, New York, 1906; died April 7, aged 76, of coronary thrombosis.

Charles W. Morrow, Fairhope, Ala.; University of Maryland School of Medicine, Baltimore, 1888; died March 25, aged 81.

Frederic T. Murllees Jr., Hartford, Conn. (licensed in Connecticut in 1892); also a dentist; died March 11, aged 81.

Edward Henry Nelson ● Chisholm, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1903; served as mayor of Chisholm and as member of the board of education; died in Hibbing General Hospital, Hibbing, March 29, aged 72, of cerebral embolism.

Arthur North, Corpus Christi, Texas; University of Arkansas School of Medicine, Little Rock, 1907; member of the American Medical Association; served as a physician for the U. S. Department of Justice and the county jail; member of the local draft board during World Wars I and II; died March 13, aged 75, of cardiac decompensation.

John Gabriel O'Connell, Bridgeport, Conn.; Tufts College Medical School, Boston, 1917; member of the American Medical Association; formerly associate surgeon at Bridgeport Hospital; died in Newington, April 6, aged 57, of coronary thrombosis.

Herbert James Orchard ● Superior, Wis.; Trinity Medical College, Toronto, Canada, 1892; formerly city health officer; for many years affiliated with St. Mary's Hospital, died March 25, aged 79, of arteriosclerotic heart disease and bronchiectasis.

Harry Walker Paul ● Shreveport, La.; University of Texas School of Medicine, Galveston, 1920; deputy coroner of Caddo Parish for many years; on the staffs of the T. E. Schumpert Memorial Sanitarium and the North Louisiana Sanitarium; died in Tri-State Hospital March 22, aged 53, of pulmonary infarct and cirrhosis of the liver.

Birdsey Preston Peck, Eaton, Colo.; Denver Homeopathic College, 1904; died in March, aged 73.

Wilson Pendleton, Asheville, N. C.; University of Virginia Department of Medicine, Charlottesville, 1908; member of the American Medical Association; past president of the Buncombe County Medical Society; member of the American College of Chest Physicians; served during World War I; affiliated with the Asheville Mission Hospital; died March 28, aged 62, of cerebral hemorrhage.

Valentine Simmons; Pacific Palisades, Calif.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the American Medical Association and of the Louisiana State Medical Society; died March 24, aged 76, of carcinoma.

Leigh Arthur Simpson, Fulton, N. Y.; Syracuse University College of Medicine, 1920; member of the American Medical Association; died March 26, aged 52, of coronary thrombosis.

Hiram Jason Smith ● Chicago; born in Oakfield, Wis., in 1882; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; clinical associate professor of ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; chief oculist for the Illinois Central Railroad; affiliated with Illinois Central Hospital, where he died February 16, aged 65, of uremia.

Winfield Scott Smith, Philippi, W. Va.; University of the South Medical Department, Sewanee, Tenn.; 1898; served as health officer for Barbour County and as examiner for the local Selective Service board during World War I; died March 24, aged 74, of coronary occlusion.

Thomas Millette Snyder, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1916; professor of histology and embryology and clinical professor of ophthalmology at his alma mater; on the staff of the Hahnemann Hospital, where he died March 25, aged 54.

Arthur Jay Somers ● Chippewa Falls, Wis.; Milwaukee Medical College, 1905; affiliated with St. Joseph's Hospital, where he died March 25, aged 69, of uremia.

Joseph Anderson Speed, Durham, N. C.; Jefferson Medical College of Philadelphia, 1914; member of the American Medical Association; died March 15, aged 59.

George William Stark ● Syracuse, N. Y.; Syracuse University College of Medicine, 1907; member of the American Urological Association; died in Syracuse General Hospital March 2, aged 65, of coronary thrombosis.

Francis Lansing Stebbins, Geneva, N. Y.; University of the City of New York Medical Department, New York, 1891; member of the original staff of the Geneva (N. Y.) General Hospital; died in the Clifton Springs (N. Y.) Sanitarium, March 27, aged 81, of arteriosclerosis and pulmonary edema.

Henry Danford Steele, Princeton, Ill.; Northwestern University Medical School, Chicago, 1892; member of the American Medical Association; died in Phoenix, Ariz., March 3, aged 78, of coronary thrombosis.

John Frank Stein ● Oshkosh, Wis.; Milwaukee Medical College, 1905; served overseas during World War I; for many years on the staff of Mercy Hospital, where he died March 15, aged 66, of septicemia due to an infected gallbladder.

Ernest Charles Straus, Louisville, Ky.; University of Louisville Medical Department, 1905; died March 21, aged 67, of coronary occlusion.

Daniel E. Sullivan, West Hartford, Conn.; Baltimore Medical College, 1910; served as president of the board of health of Norwalk, where he was on the staff of Norwalk General Hospital; died March 23, aged 60, of cerebral hemorrhage.

Arthur Elias Sweatland ● Lufkin, Texas; Bellevue Hospital Medical College, 1895; councilor of the Tenth District Medical Society since 1926; past president and secretary of the Angelina County Medical Society; at one time on the faculty of the University of Arkansas School of Medicine, Little Rock; served during World War I; vice president and director of the First State Bank; died March 9, aged 78, of cerebral hemorrhage.

Hervey Addison Tarbell, West Allis, Wis.; University of the City of New York Medical Department, New York, 1883; formerly practiced in Watertown, S. D., where he was on the staff of the Luther Hospital, and was coroner, county physician and U. S. Pension Examiner; died March 23, aged 94, of arteriosclerosis.

Charles Hubbard Tenent, Memphis, Tenn.; Gate City Medical College, Dallas, Texas, 1904; died March 25, aged 70, of hypertensive cardiovascular disease.

Erle Duncan Tompkins ● Clarion, Iowa; University of Pennsylvania Department of Medicine, Philadelphia, 1899; past president of the Wright County Medical Society; an officer serving during World War I; served as mayor and coroner; on the staff of Clarion General Hospital; died March 26, aged 73, of coronary occlusion.

John David Trawick ● Louisville, Ky.; Vanderbilt University School of Medicine, Nashville, 1899; served as county health officer and assistant director of the city-county health department; an officer serving during World War I; on the staffs of the Children's Free and the Kosair Crippled Children hospitals; at one time a medical missionary in China; died in St. Joseph Infirmary March 15, aged 74.

Isaac Everett Treece, Arlington, Ohio; Ohio State University College of Medicine, Columbus, 1937; member of the American Medical Association; member of the school board; died in University Hospital, Columbus, March 17, aged 35, of chronic myelogenous leukemia.

Max Christopher Van de Venter, San Antonio, Texas; Hering Medical College, Chicago, 1907; died March 12, aged 71.

William Grady Waddell ● Beaver, Pa.; University of Louisville School of Medicine, 1925; served during World War I; on the staffs of the Beaver Valley General Hospital in New Brighton and the Rochester (Pa.) General Hospital; died March 8, aged 50, of heart disease.

William Walkinshaw, Stillwell, Ind.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1893; member of the American Medical Association; died March 10, aged 81, of heart disease.

Benson Earl Washburn ● Seattle; Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; specialist certified by the American Board of Otolaryngology; member of the Pacific Coast Oto-Ophthalmological Society; on the staffs of the Seattle General Hospital, Providence Hospital and Swedish Hospital, where he died March 26, aged 72, of uremia.

George Ulysses Washburn ● Peoria, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1902; on the staff of the Methodist Hospital, where he died March 14, aged 68, of coronary thrombosis and carcinoma of the prostate.

Carlton Juan Wellborn, Blairsville, Ga.; Emory University School of Medicine, Atlanta, 1917; for many years health officer of Hall County; formerly senator from the fortieth district; served during World War I; died March 22, aged 58, of coronary thrombosis.

Jasper Clinton Wheeler, Pikeville, Ky.; Hospital College of Medicine, Louisville, 1906; member of American Medical Association; past president of the Pike County Medical Society; served during World War I; died in the Baptist Hospital, Louisville, March 27, aged 65, of heart disease.

Nicholas A. Wheeler, Lafayette, Ala.; Atlanta College of Physicians and Surgeons, 1907; member of the American Medical Association; past president of the Chambers County Medical Society; member of the city council; died in March, aged 65.

Richard Bidgood Whitaker, Whiteville, N. C.; University College of Medicine, Richmond, 1912; member of the American Medical Association; served in the medical corps of the U. S. Army during World War I; died March 14, aged 61, of cerebral hemorrhage.

Victor Wilson Wickert, Wyomessing Hills, Pa.; Jefferson Medical College of Philadelphia, 1891; member of the American Medical Association; served on the staff of St. Joseph's Hospital in Reading; died March 23, aged 82, of heart disease.

Charles S. Winters, Binghamton, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1890; served on the staff of Binghamton City Hospital; died March 20, aged 84, of arteriosclerosis.

Reed Wolfe, Hugo, Okla.; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1911; president of the Tri-County Medical Society; served during World War I; formerly health superintendent of Choctaw County; died in Paris, Texas, March 19, aged 63, of coronary thrombosis.

Claud Whiting Woodruff ● Chatfield, Minn.; Rush Medical College, Chicago, 1901; served during World War I; chairman of the selective service board in Fillmore County during World War II; for many years member of the school board; died in Pomona, Calif., March 24, aged 71, of hypertensive heart disease.

Dare Woodruff ● Vineland, N. J.; Denver and Gross College of Medicine, 1907; on the staffs of the Bridgeton (N. J.) Hospital and the Newcomb Hospital; died March 10, aged 65, of coronary occlusion.

DIED WHILE IN MILITARY SERVICE

Louis Dwight Barnes, Lanesboro, Mass.; College of Physicians and Surgeons, Baltimore, 1913; served during World War I; entered the medical reserve corps of the U. S. Army as a captain on Jan. 8, 1932; promoted to major on March 14, 1940; began active duty in the medical corps, Army of the United States, Feb. 12, 1941; later promoted to the rank of lieutenant colonel; became a prisoner of war on Dec. 31, 1943; died Jan. 22, 1945, aged 58, on board a Japanese prisoner of war transport at sea of exposure and starvation.

Leon Donald Beddow ● Lieutenant Colonel, M. C., U. S. Army, San Antonio, Texas; Baylor University College of Medicine, Dallas, 1935; began active duty as a first lieutenant in the medical corps of the regular army in October 1940; promoted through the various grades to that of lieutenant colonel on June 25, 1945; went to Africa and later to Italy as a medical battalion commander with an armored division; died at the Cushing General Hospital in Framingham, Mass., Sept. 11, 1946, aged 34, of coronary thrombosis.

Lawrence Edgebert Cooper Jr., Cooter, Mo.; Vanderbilt University School of Medicine, Nashville, Tenn., 1942; interned at the Butterworth Hospital in Grand Rapids, Mich.; captain in the medical corps, Army of the United States; surgeon, 262d Ordnance Battalion (Ammunition); drowned in Germany June 6, 1945, aged 27.

Adolph Peter Kuliesis ● Lieutenant Commander (MC), U. S. Navy, Brockton, Mass.; Tufts College Medical School, Boston, 1938; interned at the Long Island Hospital in Boston and the Chelsea Memorial Hospital in Chelsea, Mass.; served a residency at the Sanatorium Division of the Boston City Hospital; appointed a lieutenant (jg) in the medical corps of the U. S. Navy on May 9, 1939; died at Newport, R. I., Feb. 5, 1944, aged 32, of coronary heart disease.

Robert Richards Leamer ● Commander, U. S. Navy, San Diego, Calif.; State University of Iowa College of Medicine, Iowa City, 1928; appointed a lieutenant (jg) in the medical corps of the regular navy on Jan. 9, 1928; died Oct. 12, 1943, aged 41, of coronary thrombosis.

John Matthew Wiedeman, Milwaukee, University of Cincinnati College of Medicine, 1943; interned at the Milwaukee Hospital; began active duty in the medical corps, Army of the United States, as a first lieutenant in January 1944; later promoted to captain; reported as missing between Iloilo and Cebu; killed in an airplane accident Feb. 5, 1946, aged 29.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 5, 1948.

Payment of Specialists in National Health Service

It is estimated that the new National Health Service will cost annually $562,400,000 and its ancillary services $480,000,000. Admitting this staggering cost, a member of the Government claimed its worth in the saving of human life and suffering which it would bring about. Meanwhile the Government goes ahead with details of its gigantic scheme for the socialization of medicine. The total maximum fees for a specialist physician or surgeon holding a part time appointment will be $8,000 a year, which will be made up as follows: For hospital work specialists will be paid $800 a year for a half-day session a week at a hospital or clinic, not more than eight sessions a week being allowed. Consultations in the patient's home to which a specialist is called by a general practitioner will be paid for at the rate of $400 a quarter for twenty-five consultations. No fee will be paid for consultations in excess of twenty-five. Major operations will be performed by surgeons in the sessional time. For minor operations at the patient's home the specialist will be paid $21. For full time specialists rates of pay ranging from $6,000 to $20,000 have been recommended by a committee appointed by the Government. All varieties of specialists will be remunerated on the same scale, the place of an individual within the scale being dependent on his responsibilities, experience and skill. Consideration was also given to the view that in the hospital system of the future there should be a more uniform level of efficiency throughout the country, a better distribution of specialists and permeation throughout the hospital service of every region of the influence of the university center. These objects could be achieved only by increasing the mobility of specialists throughout the service and facilitating the exchange of staffs between teaching and nonteaching hospitals. The starting salaries recommended for specialists appointed to the staffs of hospitals are: at 32 years of age $6,000; at 30 or below, $5,000; at 31, $5,500; above 32, $6,000, with, at the discretion of the authorities, up to four special increments of $500 in respect of age, special experience and qualifications. The initial salary should be augmented by an additional $500 after each year of service until $10,000 is reached. A national committee, predominantly professional in composition, should be established to select individual specialists whose outstanding distinction merited higher reward, and should confer awards in three grades as recognition of special contributions to medicine, exceptional ability or outstanding professional work. It is also recommended that practitioners in training for special branches should receive salaries.

Code to Control the Advertising of Nostrums

The exaggerated, if not entirely fictitious, claims made for proprietary medicines are such a scandal that a code for the guidance of advertisers, manufacturers, distributors and publishers has been drafted by organizations representing these interests. It is recommended that advertisements should not contain a claim to cure any ailment or symptoms of ill health, or any offer or advice relating to the treatment or serious diseases that should rightly claim medical attention, or make misleading or exaggerated claims. There should be no offer to return money. Terms such as college, clinic, institute or laboratory should not be used unless an establishment corresponding with the description exists. For products offered to women there should be no use of terms such as "never known to fail." References to doctors or hospitals, whether British or foreign, are not permissible unless they can be substantiated. Special claims that certain drugs have special qualities that are unknown are prohibited, as is the use of terms implying treatments for sexual weakness, premature aging or impaired vitality. A long list is given of diseases for which treatment should not be advertised. It includes alopecia, amenorrhea, arteriosclerosis, baldness, high or low blood pressure, convulsions, dermatitis, disseminated sclerosis, structural or organic defects of the ears or eyes, fungous infections, gallstones, goiter, heart troubles, impetigo, indigestion, insomnia, leg troubles, lupus, menopausal ailments, pyorrhea, renal disease, rheumatism, ringworm and gastric and duodenal ulcer.

Attempt by the Government to Establish Free Medicines in Australia

Unlike New Zealand, the government scheme for a state medical service has been defeated in Australia by the medical profession. But having failed to provide free treatment, the government is trying to provide free medicines, which again is opposed by the medical profession. The federal council of the Australian British Medical Association has instructed its members to return all formularies and prescription forms for free medicine sent to them by the government, and to continue to prescribe on private forms which will not enable patients to receive free medicines. Doctors are advised to send to their patients a circular explaining that they must be at liberty to prescribe what they think best and not the mixture that the government thinks best. This boycott follows four years of fruitless negotiation. The government's case for restricting the medicines to be supplied free is that unlimited prescribing would require unlimited expenditure.

PARIS

(From Our Regular Correspondent)

May 20, 1948.

Conference on Nomenclature

At the end of the nineteenth century, France, acting under Bertillon's influence, convened an international conference on nomenclature of diseases and the causes of death. It was agreed that this nomenclature would be revised every tenth year. In November 1946, the temporary Commission of the World Health Organization created an International Committee of Experts of 9 members, each representing a nation, entrusted with the preparation of the sixth decennial revision of the nomenclature. This conference met in Paris, April 26-30, 1948, under the presidency of Professor Baudouin. Delegates from thirty nations were present.

At this meeting the delegates signed an agreement by which international statistical classification of diseases, traumas and causes of death will be submitted to the World Health Organization for investigation and action. Countries that took no part in the conference will be able to join on application. The new classification comprises nine hundred and fifty-two items covering disease, morbid conditions and exogenous causes of morbidity and mortality. It constitutes the last to be compulsorily used for the coding of medical cards and death certificates; moreover, several abbreviated lists are proposed to meet certain requirements, such as a form for death certificates, and a ruling for the selection of the initial cause of death. The new statistical classification will come into force Jan. 1, 1950. The new classification shows remarkable progress in comparison with the classification of 1938. The number of items has been increased from two hundred to nine hundred and fifty-two and, for the first time, includes not only causes of death but all causes of disease.

The conference submitted to the World Health Organization the following proposals: (1) constitution of a permanent Committee of Experts in Sanitary Statistics, (2) constitution by various governments of National Committees, the duties of which it would be to coordinate statistical works within the country and to serve as a liaison unit between the medico-statistical organizations and the Committee of Experts of the

World Health Organization, (3) decentralization of the study of certain problems, which would be entrusted to National Committees, and (4) convocation, when needed, of international conferences on statistical problems and cooperation with the interested sections of the United Nations.

Superannuation Pension for Physicians

The law of Jan. 17, 1948, provides for a compulsory basic pension at least equal to half of the superannuated workers' pension. This modest grant is a result of the creation of the "Liberal Professions Fund." The law provides for a supplementary pension, created on the application of the interested profession. The autonomous physicians' fund will be the concern of physicians only and will be managed by physicians without being submitted to any other professional fund. The National Council of the Order of Doctors has had a pension established, which would be payable after the age of 65, provided that the beneficiary stops practicing; it can be deferred as long as the interested physician desires. The plan provides for the payment of 200,000 francs to lawful legatees in case the physician dies before 65, the reversibility of half the pension to the widow when she attains the age of 65 and in case of total disability the payment of 200,000 francs and of the whole pension. It is estimated that one physician out of two will retire at 65. A reduction of the yearly contribution by young and aged physicians is provided. The grant of the pension to physicians who have attained the age of 65 and who have not made the necessary annual payments will be made against payment by them of a lump sum, covering partially the lacking payments. The plan has just been submitted to all physicians of France for referendum.

PALESTINE

(From Our Regular Correspondent)

JERUSALEM, May 17, 1948.

Palestine Disturbances after November 29, 1947

When the United Nations General Assembly made known its decision to partition Palestine, an uninterrupted wave of war began in this country. In the first five months there was a total casualty toll of 10,646 persons, 5,014 of whom were reported killed and 5,632 wounded. Of the 5,014 dead, 1,256 were Jews, 3,569 Arabs; the rest included military personnel and police. Of the 5,632 wounded, 2,102 were Jews and 3,163 Arabs. As illustrated by these figures, the endeavors of the Palestine government to maintain law and order have, unfortunately, proved ineffective. In January 1948 the Palestine government approached the International Red Cross with the request to send a mission to Palestine which should examine the situation in the light of the many casualties and the difficulties of hospitalization. At the end of January, three delegates of the International Red Cross were elected: Dr. R. Marti, Dr. M. J. de Reynier, both of the International Red Cross Headquarters in Geneva, and Dr. N. I. Munier of Egypt, head of the Middle East International Red Cross Mission. The commission made a tour through Palestine, had discussions with the responsible authorities of the Jews (Vaad Le'umi, Dr. Katznelson, and the Red Shield Organization, Dr. Nissel, Dr. Dankwert and Dr. Levontin), as well as with the Arab Medical Association, and inspected the available medical institutes and hospitals. The commission also visited the Department of Contagious Diseases of the Government Hospital at Beit Safafa, where on Dec. 28, 1947, the Jewish chief, Dr. H. Lehrs, was murdered in cold blood while on his daily round of duty. Inspecting Jaffa, Tel-Aviv and Haifa, the International Red Cross Commission saw the available hospitals and emergency hospitals (such as the El Amin hospital in Haifa and the Borochov hospital in Ahuza). The destruction in Palestine seen by the members of the commission is described by them as "shocking and terrible."

By the beginning of January 1948, it had become clear that attacks on physicians, nurses and Red Shield ambulances were considered normal by the Arab fighters. On January 6 an appeal was made by the Jewish Medical Association and the Arab Medical Association, for respect of the immunity of physicians, nurses and hospital staff, irrespective of race, origin and creed. This appeal was not heeded. Attacks on Jewish medical personnel, ambulances and hospitals continued unabated, in spite of the endeavors made by the Arab and Jewish medical organizations. The Arabs did not hesitate to attack funerals, and they were abiding by no convention concerning Jewish wounded persons and prisoners. On March 31 the Jewish Agency and the Arab Higher Executive assured the International Red Cross Society that they would welcome a Red Cross delegation to Palestine which would care for the victims of the present disturbances. Dr. de Reynier said that activities of the International Red Cross would commence immediately on the written agreement of both parties to the Geneva Convention. A Red Cross commission, consisting of eight commissioners, four physicians and ten nurses, has been planned. The Red Cross intends not to open hospitals of its own but to attempt to keep existing hospitals, as well as first aid stations, ambulances and the members of the medical profession immune from attacks. The Red Cross will, furthermore, care for the wounded, the evacuation of women and children from the battle zones and the setting up of neutral areas for limited periods, where persons could find refuge from the fighting. Some of these intentions have already materialized in the Jerusalem area, inasmuch as the entire complex of the Government Hospital in Jerusalem has been placed under the supervision of the Red Cross and under the administration of the Arab Medical Association. Negotiations have also taken place regarding the establishment of so-called "Geneva Islands" (neutral places as previously described). The budget for the administrative work of the International Red Cross in Palestine has been fixed at 1,000,000 Swiss francs, contributed jointly by the Palestine government, the Jewish Agency and the Arab Higher Executive.

All these endeavors did not prevent the catastrophe of April 13, when Arab bands attacked the staff of the Hadassah Hospital and members of the Hebrew University, who were on their way through the Sheikh Jarrah Quarter of Jerusalem to the Hadassah and University premises on Mount Scopus. Seventy-six Jews were murdered in this attack and 21 wounded. There were ten vehicles in all in this Hadassah convoy, three containing solely physicians, nurses and patients. Some of the vehicles were clearly marked with the insignia of the Red Shield. Among the dead were the Director of the Hadassah Hospital, Dr. Chaim Yassky; Dr. Doljanski, the head of the Department of Experimental Pathology and of the Cancer Research Laboratory; Dr. Ben David, Secretary to the Committee of the Medical Faculty, and Dr. B. Miszurski, assistant to Dr. Doljanski. The tragedy of this massacre is best described in the words of the few survivors, Dr. I. M. Bromberg and Dr. Ullman:

> About 9:45 a. m. the ambulance in which we were traveling hit a mine and fell into a road trap, and the engine was damaged. The ambulance was a few meters behind the escort car and a few meters in front of two buses which were also damaged. The vehicles were peppered with bullets, and at 10:15 a. m. the first bullets penetrated the ambulance. Dr. Yassky was the first person to be wounded, some pieces of shrapnel hitting his leg. Many hundreds of shots were fired at the vehicles, some from heavy weapons, and explosions occurred nearby.
>
> Those in the ambulance were the drivers, Dr. and Mrs. Yassky, one wounded patient on a stretcher, the assistant matron of the hospital and six other physicians.
>
> Dr. Yassky sat next to the driver throughout and opened the peephole of the ambulance from time to time to see what was going on and to report on events. His movements were quickly observed by the Arabs, and it became clear that he had become a special target, because the largest concentration of bullets was directed at his part of the vehicle. It was suggested that he move farther back into the ambulance, but he refused, wishing to stay at his observation post and to encourage the driver.
>
> At 11:15 a. m. the second casualty occurred in the ambulance, when Dr. Matoth, children's physician, was also hit by shrapnel. At 12 noon Dr. Yassky reported that Arabs were coming much nearer and that large numbers were massing for what appeared to be the kill. At 1 p. m. Dr. Yassky said "This looks like the end. We must say goodbye."
>
> A little later, a convoy of British Army cars was seen by Dr. Yassky to turn into the Ramallah Road. He shouted to them for help and waved

a white handkerchief, which he reported must have been clearly seen by the soldiers.

At 2 p. m. a second army convoy took the same road, and again they were signalled. There was no help forthcoming.

At 2:45 p. m. more bullets penetrated the car near Dr. Yassky, and he was slightly wounded in the face. A little later he reported that one of the buses was burning and that its occupants must be dead. Soon afterward he reported that the second bus was burning. He then said farewell to the occupants of the ambulance and to his wife, and the other passengers also began to say farewell.

Just after 3 p. m. a bullet penetrated the lower part of the ambulance, apparently passing through the engine, and hit Dr. Yassky in the region of the liver. He began to bleed profusely. He asked for an injection of morphine, which he was given. He said a final word to his wife and his staff and to the patient on his stretcher.

The passage of time in the ambulance became blurred. One or two persons actually dozed off at intervals, and all were resigned to their death. Many made neat packages of their watches and personal belongings, which they stowed away in the ambulance, and sat awaiting their bullet. Indeed, several were impatient for this bullet to come, because on several occasions waves of Arabs had approached to within a few meters of the cars, out to slaughter.

Around noon, the driver of the vehicle, Zecharia, thought that it was better to run for it than to sit and await butchery in the ambulance. He was killed a few moments later. Later, one of the physicians also thought that the slim chance of a run for safety was better than the certainty of being killed in a trap. Though wounded, he got out of the car, and his run for safety was a crawl on all fours to Antonin House, which he reached, to be saved by the small British unit in occupation of this building, about 20 yards from the ambulance.

At 3 p. m. two army ambulances passed by the stranded cars; help was asked for and again was not given.

Some time during the afternoon, a number of "Molotov bottles" hit the ambulance, but failed to set it on fire. One of the wounded bus drivers crawled to our ambulance and was able to get into the driver's seat. He became impatient, decided the occupants of the ambulance had no chance, crawled out again and was killed.

All these macabre happenings took place against a background of bullets, bombs, mortars, "Molotov bottles" and hordes of Arabs crazed with an orgy of shooting.

The ordeal lasted seven hours, and then, at 4:30 p. m., British help arrived. Since this help was extended, all occupants of the ambulance have been unanimous in declaring how helpful and considerate the manner was.

New Blood Pressure Principle of Anterior Lobe of Hypophysis

Proceeding from the observation that after hypophysectomy of rats the blood pressure sinks as it does after adrenalectomy, H. Hase (Tel-Aviv) attempted experimentally to find the principle responsible in the hypophysis for the maintenance of the blood pressure. The hypophysis extract used for this purpose was dialyzed after acid hydrolysis, and the last dialysate was used for the experiments. The tests were made with rats; the nonbloody method of Byron and Wilson was used to determine the blood pressure of the rat tail. As hypophysectomized rats could not be obtained for the experiments, the animals were made hypotonic through the elimination of the adrenals. The normal blood pressure value of the test animals was between 130 and 140 mm. After the elimination of the adrenals, values between 85 and 90 mm. could be measured. After injection of the hypophysis extract, the blood pressure increased, reaching a peak after one and a half to two hours and returning to its starting point within the next twenty-four hours. In two publications (*Nature*, Dec. 6, 1947, and *Acta Medica Orientalia*, Jan.-Feb. 1948) Hase pointed out the significance of this new blood pressure factor. He expressed the belief that this principle was particularly important in the treatment of blood pressure disorders caused by hormonal disturbances. Clinical examinations of persons suffering from hypotonia and presenting, at the same time, endocrine disturbances, showed reactions to the injected extract of the anterior lobe of the hypophysis with a temporary increase in the blood pressure and partial improvement of the disturbed endocrine functions (testes or ovaries). The extract used was clearly free of gonadotrope substances.

The death of Hase, in February 1948, interrupted these studies which were carried out in the laboratories of the Teva Middle East Pharmaceutical and Chemical Works Ltd., Jerusalem.

A New Outbreak of Typhoid in Palestine

In the beginning of May, a new outbreak of typhoid fever was reported from the Arab town of Acre. There is no doubt of the epidemic character of this outbreak, and the disease has already spread to neighboring villages, particularly to Satr Amr. The source of infection seems to be the municipal drinking water. The spreading of the disease has been favored by the large influx of Arabs from Haifa, since the necessary control measures can hardly be carried out during the present disorders. British military and police personnel have also been infected, and the latest known figures of persons implicated are as follows: 54 British soldiers, 10 British police and 70 civilians. The difficulties encountered in fighting the epidemic in the present circumstances are shown by a report stating that in Acre Arabs killed an army sergeant and wounded 2 soldiers who had brought dichlorodiphenyltrichloroethane (DDT) for use in the town.

Importance of Complement Fixation Test for Amebiasis

In a paper read before the Palestine Jewish Medical Association, Tel-Aviv Branch, H. Steinitz reported on 70 cases of various abdominal troubles. All the patients were examined thoroughly, many during long periods in hospitals. An exact diagnosis was not made, but the patients showed positive reactions to the complement fixation test for amebiasis (performed by A. Klopstock with his modification of Craig's method). Included in this series were some cases of acute amebic hepatitis, besides a number of cases of subacute and chronic hepatitis and chronic intestinal amebiasis (without amebas in the feces). The antiamebic treatment, performed on the basis of the positive reaction to the serologic test, proved highly successful in about 75 per cent of the cases (including all the acute cases), a therapeutic result considered as satisfactory, since results have not been better in cases in which there were positive observations of Amoeba histolytica in the feces.

In the opinion of H. Steinitz the complement fixation test is indicated in all cases of abdominal disturbances, acute as well as chronic, with unclear diagnosis, and particularly in those cases in which, in spite of many examinations, a definite diagnosis has been impossible. The complement fixation test should also be made when no improvement has resulted from antiamebic therapy. A further indication is the impossibility of examination of the feces on the spot, owing to the lack of experienced examiners or the necessity of sending specimens for examination over long distances, e. g., in rural districts. A positive result in a complement fixation test in undiagnosed abdominal diseases is helpful in the diagnosis "amebiasis" and allows the physician to undertake antiamebic therapy.

In the discussion which followed, Sandler reported on his own experiences with the complement fixation test with patients of the Workers' Sick Fund. He came to conclusions similar to those of Steinitz. Klopstock gave a short report of the examination of about four thousand specimens (to be published shortly *in extenso*), pointing out the important significance of a positive reaction to a complement fixation test. The reaction is specific for amebiasis, but further technical improvement will be necessary to improve the results. Most of the other participants in the discussion acknowledged the importance of these investigations and pointed out the necessity of further extensive examinations to clarify the possibility of a more exact diagnosis of the amebic infection—a problem of particular importance for Palestine, with its high rate of infection with amebiasis.

AUSTRALIA

(From Our Regular Correspondent)

June 14, 1948.

Pharmaceutic Benefits Crisis

A situation without parallel in medical history exists in Australia today. An enactment by the commonwealth government has been nullified by the combined action of the medical profession.

From June 1 every Australian was entitled to have a limited range of medical prescriptions dispensed without payment to the pharmaceutic chemist. While the actual number of prescriptions so dispensed will not be known until the government checking staff has received the chemists' claims at the end of the month, available evidence suggests that the total is negligible. Far from being annoyed at the refusal of the doctors to take part in the scheme, the Australian public is apathetic and adopts the attitude of a detached spectator of a battle of

tactics. There is a growing public aversion to socialization in Australia. Two days before the plan was brought into force, the people, through a referendum, gave an emphatic negative to the government's referendum on price fixing.

The government's scheme is that prescriptions will be limited to a formulary and must be written on a prescribed form. The British Medical Association voices the attitude of all doctors in Australia when they make three objections to the "free" medicine plan:

1. The limitation of prescribing to a restricted formulary interferes with a doctor's duty to prescribe according to his professional judgment. Estimates indicate that the formulary would cover only about half the prescriptions normally written. The formulary is not as wide as the British Pharmacopoeia and (to the horror of manufacturing chemists) does not include proprietary preparations.

2. Although the minister for health (Senator McKenna) promised that there would be no penalty clauses against doctors, the medical practitioner finds himself beset with instructions, failure to comply with which leave him liable to a penalty of 50 pounds ($150). One of these instructions is that the doctor will not use a government prescription form for any other purpose than the writing of a prescription "in accordance with, and for the purpose of the Act and these Regulations. Penalty: Fifty pounds."

3. None of the recommendations by the British Medical Association (at the request of the government) for extension of the formulary were included.

Less definite but equally cogent objections to the scheme are:

1. It is the beginning of a national medical service by back-door methods.

2. It is both difficult and dangerous to make a patient's disease fit a formulary.

3. The scheme placed in the hands of the director-general of health the complete control of medical prescribing. It was an example of government by regulation.

In a bitter attack on doctors in the national parliament June 15, the minister for health drew attention to the "social and professional ostracism exercised by doctors against doctors. It is one of the cruelest, most vicious, unchristian things within the law in this country." He criticized doctors who earned great wealth from the sick and suffering of the community, yet denied financial relief to their patients. The doctors' objections to the penalty clauses, said the minister, were not only without merit, but were utterly fantastic.

The spokesman for the British Medical Association, Dr. J. G. Hunter, general-secretary of the federal council, replied to this outburst by pointing out that their boycott policy was determined by the rank and file of the profession and that the British Medical Association merely acted as a mouthpiece. The minister's statement on the scheme was described as "characterized by distortions and omissions." The minister's claim that 95 per cent of chemists' prescriptions came within the formulary was completely and absolutely untrue. Abuse of the British Medical Association was no argument in favor of "free" medicine.

The British Medical Association has offered to participate in the plan if: (1) penalty clauses are deleted, and control of doctors maintained by a professional committee from their own association; (2) doctors use their own prescription forms; (3) any doctor's prescription will be dispensed by the chemist without charge to the patient.

The present attitude of the British Medical Association is that no further negotiations will be entered into with the minister for health unless he expresses his willingness to make, as a basis of negotiation, elimination of (*a*) government prescription forms, (*b*) all penal clauses applicable to doctors and (*c*) limitation of prescribing to a formulary.

June 21, the federal president of the British Medical Association (Sir Henry Newland) announced that he had received a letter from the minister, inviting the British Medical Association to a conference on these points.

The government, meanwhile, has placed itself in a difficult position by anticipating the implementation of the plan and collecting a social services contribution from taxpayers for the financial year 1946-1947. Public pressure is thus brought on the government to settle its dispute with the doctors.

Artificial Insemination

Referring to the report on this subject in THE JOURNAL, May 8, page 170, obstetric hospitals in Australia are beginning to adopt the principle of artificial insemination, but the procedure is not often successful.

The first of 7 babies resulting from artificial insemination was recently born in Sydney. In Brisbane 6 women have been inseminated without result. In most of these cases, the husband has been the donor. It is believed, however, that some babies have been born in Australia as a result of insemination by donors other than the husband.

Owing to the absence of legal protection for all concerned, information of such procedure is difficult to obtain. Theologians are outspoken in their condemnation, the Roman Catholic church particularly. Recently, the Church of England in Australia, through Bishop Dixon stated:

"The faithful should declare exactly where it stood if they were to accept attacks on the sanctity of marriage, or if there was failure to check suggestions of the use of artificial means for bringing about human birth. The latter would result in cruelty to individuals brought into existence knowing nothing of their parentage, or the grave dangers by which they must be handicapped from birth."

BELGIUM

(From Our Regular Correspondent)

LIÉGE, June 22, 1948.

Doctors Fighting Against the Government

A most acute controversy has arisen between the Belgian Medical Federation and the Secretary of the Treasury (Minister of Finances). The creation of a fiscal notebook for all the fees collected by the physician, in which the nature of the fee should be indicated for those who are subjects of insurance against diseases, has caused a general revolt of the medical profession. In fact, the fiscal inquiry makes medical secrecy, which is the basis of professional ethics, meaningless to a larger extent than it is realized. The great Belgian medical association, *Fédération Médicale Belge*, has realized an impressive referendum: 6,000 of 8,000 practitioners have declared themselves ready to support the claims and to refuse the use of the fiscal notebook. By an important majority the representatives of the general assembly have decided that in case penalties should be imposed on the physicians, the Belgian Medical Federation immediately will go on administrative strike.

This administrative strike will consist of not filling out any administrative papers except: (*a*) medical prescriptions on personal stationery; (*b*) testimony ordered by articles 55 to 57 of the Civil Law and article 361 of the Criminal Law compelling the physician to report a birth in the absence of the father, and (*c*) reports of contagious diseases (royal ordinance of June 10, 1922).

If physicians should be imprisoned, the Belgian Medical Federation will not hesitate to declare a strike, withholding medical attendance except for emergency cases.

This unanimity of the members of the medical profession and this firmness provide a good outlook in the fight against the progress of state management of medicine. In fact, if the medical profession continues this united resistance, it will have the experience—and this will be a convincing one—of the immense advantage which the abolition of payments by a third party would involve for the profession. In the present circumstances the doctor gets his fee from the patient and ignores the entire organization of insurance against disease or mutual insurance which should pay in his stead. It is a return to the total emancipation of medicine, a situation which should never have been abandoned if medicine was to remain a free and justly honored profession.

Correspondence

STATISTICAL ANALYSIS OF "TREATMENT OF MENINGITIS WITH SULFADIAZINE AND SULFAMERAZINE"

To the Editor:—In the January 3 issue of THE JOURNAL, page 8, appeared an article by Zeller, Hirsh, Sweet and Dowling entitled "Treatment of Meningitis with Sulfadiazine and Sulfamerazine," in which the results of therapy with a combination of sulfadiazine and sulfamerazine in 75 cases of meningococcic meningitis are compared statistically with the results achieved against this disease in previous studies using either sulfadiazine or sulfamerazine alone. Unfortunately, the authors arrive at conclusions which are not supported by their own results but are based on the fallacious interpretation of statistical data.

Dr. Dowling began therapy with the sulfadiazine-sulfamerazine combination following my suggestion at the occasion of his personal visit to my laboratory in the fall of 1944. However, he and his co-workers arbitrarily increased the dosage of the combination "25 to 33 per cent" above the generally accepted routine dosage of sulfonamide drugs. Thus, adult patients received 8 to 9 Gm. of the combination daily as contrasted to the 6 Gm. maintenance dose used by these authors previously with either sulfadiazine or sulfamerazine. Consequently, each patient on combination therapy received an additional amount of at least 21 Gm. of a sulfonamide drug in the average ten day treatment period! While the authors neither claim nor prove the necessity for such a substantial increase in dosage when using the sulfadiazine-sulfamerazine combination, they formulate their conclusions on the advantages and disadvantages of mixture therapy as if they had used the ordinarily required dosage and thus present an entirely misleading picture. The chief advantage of sulfonamide combinations—the avoidance of renal complications—is obscured, and the possible increase in sensitization reactions is given undue prominence. Moreover, "in most patients in the present series, the initial dose (8 Gm.!) and one or two subsequent dosages were given intravenously" (p. 8), so that each patient received 14 Gm. of sulfonamide combination intravenously in the first twenty-four hours. When using the smaller dosage of single sulfonamide drugs, Dowling and associates employed the oral route as a rule, reserving intravenous therapy for the severely ill and stuporous patient (Sweet, L. K.; Dumoff, S. E., and Dowling, H. F.: Meningococcic Meningitis Treated with Sulfadiazine and Sulfamerazine: A Three Year Study, *Ann. Int. Med.* **23**:338, 1945). It is common knowledge that administration by vein increases the danger of renal complications sometimes as much as 50 per cent (Plummer, N., and Wheeler, C.: The Toxicity of Sulfadiazine: Observations on 1,357 Cases, *Am. J. M. Sc.* **207**:175 [Feb.] 1944). Statistical comparison is further complicated by the use of serum therapy with single sulfonamide agents and the elimination of this measure in the present series and also by the great variations in mortality figures (20 to 90 per cent) in different epidemics of meningococcic meningitis (Lepper, M. H.; Sweet, L. K., and Dowling, H. F.: The Treatment of Meningococcic Infections with Sulfadiazine and Sulfamerazine, *J. A. M. A.* **123**:134 [Sept. 18] 1943). Hence, it seems hardly possible to obtain valid data on comparative case fatality rates in evaluating small series of patients unless alternate patients are treated with single and combined sulfonamide agents in the same epidemic, a measure employed by the authors when comparing sulfadiazine and sulfamerazine (*Ann. Int. Med.* **23**:338, 1945). The two reasons put forward by Zeller and co-workers in their explanation of the use of this excessive dosage schedule (p. 11) are unsound and highly objectionable. To my knowledge no better clinical results were predicted by proponents of the sulfonamide mixture therapy. Rather it was contended that the relative increase in solubility would permit the use of higher dosages wherever necessary without a prohibitive increase in the incidence of renal complications. This contention was fully confirmed in the study under discussion. In our own experience, now based on the treatment of more than 1,000 patients with various acute infections including meningitis, sulfonamide combinations produced highly satisfactory clinical results at the routine dosage level without any renal complications (Lehr, D.: Prevention of Renal Damage by Use of Mixtures of Sulphonamides: Animal-Experimental and Clinical Studies, *Brit. M. J.* **2**:943 [Dec. 13] 1947). Moreover, it is impossible to follow the reasoning of Zeller and co-workers, that the claim of better clinical results with sulfonamide mixtures could be investigated by the employment of higher dosages. Logically, the prerequisite of such proof would hinge on the use of equal amounts of sulfonamide drugs in the series slated for comparison. Otherwise, what evidence can the authors provide that the combination would not have rendered identical therapeutic results at the 6 Gm. daily dose, obviously with a further significant decrease in the incidence of renal complications? This assumption is supported by the conclusion which Dowling and co-workers derive from a three year study on the "Treatment of Meningococcic Meningitis with Sulfadiazine and Sulfamerazine," namely, that high sulfonamide concentrations in the blood bore no direct relation to recovery in patients with meningococcic meningitis. The authors must have been aware also that raising the dosage in a mixture of only two sulfonamide drugs meant the removal of much of the basic advantage on which the principle of combination therapy rests. H. F. Dowling and M. H. Lepper (Toxic Reactions Following Therapy with Sulfapyridine, Sulfathiazole and Sulfadiazine, *J. A. M. A.* **121**: 1190 [Apr. 10] 1943), among others, reported that the frequency of renal calculi varied in direct proportion to the maximum level of the sulfonamide compounds in the patient's blood. They found that calculi occurred only when dosages larger than 3 Gm. of sulfadiazine or sulfathiazole were given in twenty-four hours. Dowling and co-workers (Relative Toxicity of Sulfadiazine and Sulfamerazine, *J. A. M. A.* **125**:103 [May 3] 1944) also reported that sulfamerazine causes significantly more kidney damage than sulfadiazine. It follows that the upper limits for the safe use of a sulfadiazine-sulfamerazine combination without alkalization lies in the 6 Gm. routine dosage or below this amount. Consequently, the authors' statement that the second reason for the use of a higher dosage was "to explore the upper limits of dosage at which the mixture could be safely administered" is strange indeed.

Despite the fact that the sulfadiazine-sulfamerazine combination was put at such obvious disadvantages in the comparison with the separate compounds, the results reported, except for an apparent increase in allergic reactions, are all in favor of the combination. There was a lower case fatality rate in all age groups receiving the sulfadiazine-sulfamerazine combination, as well as in patients grouped in accordance with the poorest prognosis. There were much fewer "complications related to disease," 14 per cent for the mixture as compared to 26 per cent for the single drugs. (This difference, incidentally, approaches statistical significance when tested by the chi square method.) There was finally a substantially lower incidence of renal complications as well as a lowered incidence of nausea, vomiting, leukopenia and anemia, despite the fact that patients on combination therapy had the highest blood levels and received a 25 to 33 per cent higher dosage than patients treated with either sulfadiazine or sulfamerazine alone.

With regard to allergic reactions, one is struck by the unusual combined tabulation heading, "Fever and/or Rash and/or Conjunctivitis," which seems to attach undue significance to conjunctivitis alone as a sensitization reaction. The combined reporting of these three reactions makes it impossible to elucidate the exact position of conjunctivitis in the over-all picture of reactions counted as allergic in nature. However, it seems fair to assume that the exceptionally high figures for sensitization reactions reported by Dowling and co-workers for the separate compounds as well as the combination, which are in conspicuous contrast to most reports in the literature, are due to the inclusion of conjunctivitis alone as an allergic reaction. Although conjunctivitis is seen occasionally accompanying other sensitization reactions from sulfathiazole, it seems extremely rare from sulfadiazine and its homologues. Plummer and Wheeler reported 1 case of conjunctivitis among 1,357 patients receiving full sulfadiazine therapy without qualifying the nature of this reaction. Most authors reporting toxic reactions from sulfadiazine or sulfamerazine do not mention the occurrence of conjunctivitis. Dowling himself (Dowling, H. F.; Hartman, C. R.; Sugar, S. J., and Feldman, H. A.: The Treatment of Pneumococcic Pneumonia with Sulfadiazine, *J. A. M. A.* **117**: 824 [Sept. 6] 1941) saw no conjunctivitis in 137 patients with pneumococcic pneumonia treated with sulfadiazine. Hence, the frequency of this reaction in meningitis would speak for connection with the infection. Associates and I have not observed any instance of conjunctivitis alone as an allergic reaction in our large series treated with the combinations sulfathiazole-sulfadiazine and sulfadiazine-sulfamerazine. Moreover, in our experience the incidence of drug fever and rash remained at the same low level as indicated in previous reports (Lehr, D.; Slobody, L. B., and Greenberg, W. B.: The Use of a Sulfadiazine-Sulfathiazole Mixture in the Treatment of Children, *J. Pediat.* **29**:275 [Sept.] 1946). A full explanation of this observation is beyond the scope of this discussion; it will be published elsewhere. Briefly, however, it should be stressed that the widely accepted belief that the production of sulfonamide allergy is independent of the size of the dosage has no basis in fact. On the contrary, there exists overwhelming evidence that within limits the incidence of sensitization is directly proportional to the tissue concentration of each sulfonamide compound. Hence, if one refrains from the use of excessive amounts, combinations of two or more sulfonamide drugs in partial dosage may result in an actual decrease of the incidence of allergic reactions despite the simultaneous presence of several independent allergens. This contention could serve to explain the low incidence of drug fever and rash observed in our series, even after prolonged therapy. Our own findings and the objection raised against the inclusion of conjunctivitis alone as an allergic reaction make it appear doubtful whether any significance can be attached to the increase in sensitization reactions reported by Zeller and co-workers in their small series.

Finally, in the statistical evaluation of the results, the authors have made liberal use of the chi square method. Readers unfamiliar with statistics are likely to draw wrong conclusions from the fact that none of the authors' measurements revealed statistically significant differences between sulfadiazine and sulfamerazine used as combination (group A), and separately (group B). For example, the fatality rate observed in group A was 6.7 per cent and in group B was 10.1 per cent. In the present instance this difference is "statistically not significant," meaning that a definite conclusion cannot be reached that method A is better than method B, because this percentage difference is based on such a small sample. The difference might be due to chance alone. However, it does not mean that method B is as good as method A. If these same percentages had been found in sample groups of 600 each, the difference would be statistically significant. Since every one of the authors' measurements was "statistically not significant," which is another way to saying that the evaluation with such small samples was inconclusive, the statistical data do not permit any conclusions as to the advantages of one method over the other. Hence, the authors have wrongly interpreted the chi square tests to mean that there is no difference between method A and method B, as regards fatality rate and the incidence of renal complication, while the results of these tests merely suggest the necessity for collection of more data.

In summary, then, the authors have failed to provide any valid evidence that with the doses required for the treatment of meningococcic meningitis the disadvantages of using a mixture of sulfadiazine and sulfamerazine outweigh the advantages.

DAVID LEHR, M.D., New York.

TRANSIENT CEREBRAL PARALYSIS

To the Editor:—In a recent report in THE JOURNAL entitled "Transient Cerebral Paralysis in Hypertension and in Cerebral Embolism" (J. A. M. A. **127**:423 [May 29] 1948), Pickering challenged the hypothesis that cerebral angiospasm is responsible for hypertensive encephalopathy, pointing out that cerebral vessels have relatively thin walls and that they react poorly to vasoconstrictor agents. This author furthermore expressed the view that sudden organic arterial obstruction, for example by a thrombus, and not vasospasm is the cause of the transient paralyses observed in hypertensive disease. This concept is based on his observation that embolic occlusion of cerebral arteries produces attacks that are "precisely similar in kind and range to those occurring in hypertension." Thus in either condition, according to this author, paralyses may be transient or permanent depending entirely on the establishment of a collateral circulation.

What Pickering failed to consider, however, is that the similarity between the attacks associated with cerebral embolism and those with hypertensive encephalopathy might well be the result of a common denominator other than organic arterial obstruction; namely, cerebral angiospasm itself. That arterial embolism is commonly associated with intense vasospasm of the adjacent vascular channels has been established. It has also been recognized that vasoconstriction arising in this manner is often a more potent cause of the ischemia than the organic occlusion itself. The development of such vasospasm, therefore, and its subsequent disappearance in cases of cerebral embolism might well explain the transient character of the episodes observed in some instances.

It would indeed be impossible to explain the recurrence of identical seizures in a hypertensive patient ten, twenty or more times in a day or in the course of a year or more on the basis of organic arterial occlusions.

Although cerebral arteries allegedly possess feeble contractility, Pickering is unable to explain Penfield's observation of intense vasoconstriction of the arteries of the exposed cortex following an epileptic attack induced by electrical stimulation (Penfield, W.: The Circulation of Epileptic Brain, *A. Research Nerv. & Mental Dis., Proc.* **18**:605, 1938).

Our own studies in which papaverine in large oral dosage successfully prevented the attacks of hypertensive encephalopathy (J. A. M. A. **136**:930 [April 3] 1948) and idiopathic epilepsy (to be published) add further evidence in support of cerebral angiospasm as the underlying basis for these conditions.

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Medical Economics

COMPARATIVE INCREASES IN THE COSTS OF MEDICAL CARE AND IN THE COST OF LIVING

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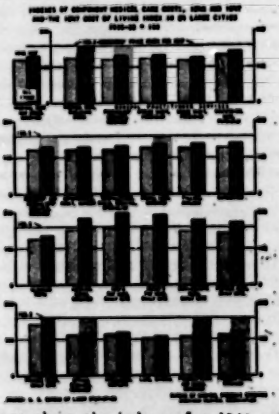
Frequently physicians ask if the general cost of living has risen faster or slower than a fee or service rate charged by physicians. A rather satisfactory answer is provided for the thirty-four large cities in which field representatives of the U.S. Bureau of Labor Statistics gather sample data monthly or quarterly. Their compilations for 1947 have been made available.

Except for hospital items, the index of the cost of living (now called "consumers' price index for moderate-income families") for 1947 was higher than the index of any reported medical care item.[1]



The chart shows the indexes for 1946 and 1947. The sharp rise in hospital rates is noteworthy. In each section of the chart the consumers' price index for 1947, 159.2, is shown as a horizontal line. It should be noted that the index for "medical care and drugs combined" for 1947 is 131.6 and for medical care excluding drugs, 135.3. For physicians' services (general practitioner) combined the index for 1947 stands at 130.3.

House visits at 125.3 are not as high as office visits, 132.4. Obstetric cases show the highest index, 143.7, in this group for 1947.

Hospitals have been exposed to the full impact of inflation during the forties. Consequently, the index for hospital rates combined in 1947 is 179.6, a sharp increase from 1946, when the index was only 150.6. Observing the several hospital indexes separately, the highest in 1947, 194.4, is for men's pay ward daily rate. The lowest of these indexes for 1947 is 108.2 for the bifocal lens.

A number of indexes of drug items such as acetylsalicylic acid and quinine are not included. Data regarding these items can be found in "Indexes of Retail Prices of Services and Miscellaneous Goods",[2] pages 10-1 to 10-3.

These consumer price indexes date back to 1935; the 1935-1939 average has been set equal to 100. In the table appears the yearly index number starting with 1940 for each of the medical care items exclusive of the particular drug items already noted. The table has been so arranged that the summary item appears first and the component items in the line or lines immediately below.

Although the behavior of medical care prices in thirty-four large cities does not reflect the price changes in all towns and cities where physicians practice, it does provide a rather clear picture of the general trend of prices American people are paying for their medical care. The inescapable conclusion is that the cost of these important items of medical care has risen since 1940 but, with the exception of hospital items, not as rapidly as the general cost of living. This conclusion reinforces and substantiates the conclusions in my study of the costs of medical care.[3]

In this earlier study the conclusions were that medical care items as a whole cost the American people $5,600,000,000 in 1946 but that only 3.9 per cent of total personal consumer expenditures of the American people were spent for these medical care items; this compared with 4.3 per cent in 1940. More particularly, in 1946 the amounts spent for physicians' services and hospitals were 1 and 0.6 per cent of total personal consumer expenditures in that year. Hence, the general conclusion was that the American people were spending a smaller percentage of the total consumer budget for medical care as a whole and for physicians and hospitals as components thereof.

In 1946 physicians received only 26 per cent of all the dollars spent for medical care as compared with 31 per cent in the base period, 1935-1939, and 32 per cent in 1929, the first year for which the data were gathered and published by the U.S. Department of Commerce.

The amount spent for drugs in 1946 had risen to 24 per cent of all dollars spent for medical care as compared with only 21 per cent in the base period, 1935-1939, and 20 per cent in 1929. Thus the story of the wonder drugs is written into the recent history of medical economics. The percentages for hospitals were 16, 17 and 13, respectively; for dentists the percentages were 13, 13 and 16. It was also stated in my earlier study that the people are getting more for their money. They get well quicker, they live and earn longer. The type of medical care given in 1946 differs as much from the type given in 1929 as a 1946 passenger automobile differs from a 1929 model.

Whether one examines the record of total expenditures of the American people for medical care or the prices of significant items during recent years, the general conclusion is warranted that the American people have been fortunate in that the costs of keeping well have not risen as rapidly as the cost of living.

1. The consumers' price index covers seven groups of items. (Monthly Labor Review 66:235 [Feb.] 1948). The seventh group, Miscellaneous, covers many items including the medical care items.

This article is a condensation of a report recently published by the Bureau of Medical Economic Research. A copy will be sent on request to association headquarters.

2. Indexes of Retail Prices of Services and Miscellaneous Goods, United States Department of Labor, Bureau of Labor Statistics, 1947.

3. Dickinson, F. G.: Is Medical Care Expensive? Chicago, American Medical Association, 1947. (Breakdowns for 1946 appear in over printed copies only.)

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Constitutionality of Law Repealing Naturopathic Practice Act.—This was a suit by a number of naturopaths against the attorney general to determine the validity of chapter 2 of the Public Acts of 1947, which chapter repealed the existing naturopathic practice act and prohibited the practice of naturopathy in the state. The trial court upheld the validity of section 1 of the act (repealing the existing naturopathic practice act) but struck down section 2 (prohibiting the practice of naturopathy in the state) on the ground that it constituted an unwarranted abuse of the police power of the legislature. The effect of this decree was to remove from the Tennessee code the provisions as to licensing of applicants to practice naturopathy but to leave in effect the licenses granted from 1943 to 1947. There are some two hundred licensed naturopaths in the state. From this decision the attorney general appealed to the Supreme Court of Tennessee.

In construing a statute, said the Supreme Court, it is permissible to take notice of the conditions existing at the time of its enactment. At the session of the general assembly previous to the one enacting this statute, a committee was appointed to investigate the unlawful practice of the healing arts. The committee's report revealed that licenses to practice naturopathy had been issued to wholly unqualified persons; that they had been purchased; that they had been issued as a result of fraudulent cooperation; that a number of corporations had been chartered by naturopaths to issue certificates of compliance with the educational requirements of existing statutes, and that some of these chartered schools issued diplomas to persons who had attended the schools for a period of time not in excess of one week, but which diplomas certified that the holders thereof were qualified in a number of subjects dealing with the arts. The enactment of chapter 2, Public Acts of 1947 followed.

As we conceive the legislature intent, the Supreme Court continued, as gathered from the face of the Statute and from existing conditions, it is that the prohibitions of the statute were directed at persons engaged in the practice of naturopathy and were evidenced, first by a bar to all future licensing of such and, second, by a restriction against the use of the licenses theretofore issued. In enacting the statute the legislature intended to prevent the practice of naturopathy by persons who have only limited qualifications and do not possess what might be termed a general practitioner's or osteopath's certificate; it did not intend to prohibit the performance of the acts which the naturopathic licensing act included within the definition of the practice of naturopathy. Physicians are licensed under chapter 181 of the Public Acts of 1945, and osteopaths under section 7003 et seq of Williams' Code. These generally licensed practitioners are not prohibited from performing the acts in question. The effect of the statutes governing the practice of medicine, the practice of osteopathy and the present statute is that no person shall practice naturopathy unless he be licensed either as a general practitioner or as an osteopath. It cannot be disputed, said the Court, that the legislature has the right to require a general practitioner's license for those who desire to practice a limited branch of the healing arts, and the present statute therefore may be treated as one imposing additional qualifications on persons already in the practice of the profession. It discloses an effort on the part of the legislature to regulate one phase of the healing arts and should be construed in pari materia with other statutes on this subject.

Dr. Herzog in his work on Medical Jurisprudence very clearly calls attention to the dangers flowing from the limited knowledge of the limited practitioner as follows:

> While electro-therapy, mechano-therapy, hydrotherapy, suggestive therapeutics, and certain other forms of treatment for which licenses are issued to limited practitioners are valuable in many pathological conditions, the limited practitioner is likely to do a great deal of harm, not only because he is not thoroughly educated as a physician but, as he is only licensed to use a certain system of treatment, he is apt to use it in cases to which it is not adapted.

Obviously a much more accurate diagnosis may be expected from a general practitioner who has studied medicine and disease in all its phases than from a limited practitioner with only limited preparation therefor, and an accurate diagnosis of an ailment lies at the very foundation of successful methods of treatment. After all, concluded the court, why should not persons who hold themselves out to be doctors, who not only rub and massage patients but prescribe medicine for them, even though narcotics and sulfonamide drugs are prohibited, be required to have the training of a medical doctor? Evidently the legislature thought there was too much borderlining in the practice of naturopathy and determined to stamp out the evil that was not in the science but in the practicing of it, to the definite injury of credulous sufferers.

Accordingly the Supreme Court held that the enactment of the statute in question prohibiting naturopathy in the state was a valid exercise of the police power of the legislature and that no unwarranted discrimination appears in the act. Petition for rehearing was denied and judgment of the trial court in favor of the plaintiffs was reversed.—*Davis v. Beeler, Attorney General*, 207 S. W. (2d) 343 (Tenn., 1948).

Compensation of Physicians: Patient's Obligation to Pay Reasonable Charge for Services.—The claimant, a dully licensed physician, presented to the estate of Ada J. McKeehan, deceased, a bill for professional services rendered the deceased prior to her death. The claim was contested by the residuary legatee and allowed, but in a smaller amount. The physician, therefore, appealed to the Supreme Court of Pennsylvania.

The claimant, a specialist in internal medicine, had been the deceased's physician for some sixteen years preceding her death and was the nephew of her deceased husband. During this period he attended Mrs. McKeehan on many occasions at her home in Carlisle, at his office in Harrisburg and at the Harrisburg Hospital, where she had been a patient under his care four different times between 1939 and 1942. He made numerous physical examinations, blood counts and urinalyses for her and, on two occasions, took her to the University of Pennsylvania Hospital at Philadelphia and returned her to Carlisle. During these sixteen years Dr. Reckord never rendered any bill to Mrs. McKeehan and she at no time paid him for his services. His office records contained numerous entries showing visits by her to his office and by him to her home, as well as reference to services and treatments rendered

by him, but no charges were entered. Following the death of Mrs. McKeehan, the claimant, at the instance of the executor of her estate, prepared and presented a bill for his services for the six years immediately preceding her death, in the amount of $9,410. An auditor, appointed by the court to pass upon the claim and make distribution, awarded the physician $5,000. This award was appealed to the Orphans' Court by both the physician and the residuary legatee, and a final decree entered in favor of the physician in the amount of $2,738. On appeal to the Supreme Court the residuary legatee contended that the evidence established that the claimant intended, when he rendered the medical services in question, that they were to be gratuitous and therefore the trial court erred in making any award to him whatsoever. The physician, on the other hand, contended that the services were not rendered gratuitously, that there always was an intention to charge for them, that the charges were reasonable and that the court erred in not awarding him the full amount of his claim.

It is well settled, said the Supreme Court, that "While there is an implied agreement to pay for the services of a physician if the services were intended to be and were accepted as a gift or act of benevolence, they cannot, at the election of the physician, create a legal obligation to pay." We agree with the trial court, however, that, under all the evidence presented in the instant case, it was a question of fact for the auditor to determine whether or not the claimant intended that his services, when rendered, were to be free of charge. There is sufficient evidence on which to predicate the finding of the auditor that the claimant did not so intend, but that he intended to charge although postponing the time of making an actual charge. This finding by the auditor, approved by the orphans' court, is entitled to the same weight as the verdict of a jury and cannot be disturbed, the Supreme Court concluded.

As to the matter of compensation for the services rendered, the Supreme Court continued, it is well established that "In the absence of an express agreement as to amount, the law implies a promise to pay for a physician's services as much as they are reasonably worth." Furthermore, "physicians should not have their services valued, as you would commodities in trade, by a fixed standard; what would be a proper charge for the same service to a man fully able to pay would be excessive to a man of limited means, and what would be willingly done for the indigent, without thought of financial reward, should be compensated for by one who can afford to pay on the scale which doctors of repute measure as the proper one." In order to substantiate the reasonableness of the amount of his claim, the claimant called two Harrisburg doctors, each of whom stated that in his opinion the services rendered by the claimant were worth $10,000. It must be borne in mind, said the court, that while the opinion of other physicians is competent on the question of the value of a doctor's services, it is not so conclusive as to take the place of the judgment of the court whose duty it is to pass on the question of the value of such services. In disregarding the testimony of the claimant's experts the trial court said that their opinions were based on all the evidence given at the first hearing before the auditor, some of which was incompetent. The opinions stated a lump sum for six years' services and no opinion was elicited as to reasonable charges for various types of service, such as office calls, laboratory work, examinations, home and hospital visits. The trial court also said: "We agree that the claimant visited and examined the decedent on many occasions. We cannot agree that each examination involved much time and skill in interpreting findings. The decedent apparently had a chronic condition and we gather from the evidence that the claimant's services were largely routine, checking pulse, blood pressure, heart, lungs, throat, making urinalyses and blood counts and from time to time prescribing medicines and drugs. We have made an exhaustive study and tabulation of all the records from which we are able to set out in detail the various services rendered by claimant. We have also determined from all the evidence what we deem to be the reasonable value of the services rendered, considering, inter alia, the type of service and the time consumed in rendering it and also considering, as admissions, the charges made to others." The Supreme Court therefore concluded that, under all the evidence, the trial court did not abuse its discretion in fixing the value of the claimant's services at $2,738. Accordingly the judgment of the trial court was affirmed. *In re McKeehan's Estate, 57 A. (2d) 907 (Pa., 1948).*

Hospitals, in General: Reasonableness of Fee as Question for Jury.—The plaintiff hospital sued to recover its fee for services rendered to the defendant following injuries sustained in a collision between a bus and a streetcar. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Oklahoma.

After the collision the defendant, while still unconscious, was taken to the plaintiff hospital at the direction of the street car motorman. She remained there and received treatment for two days. After she returned home she engaged a private physician and subsequently made two additional visits to the same hospital to receive treatment. In answer to the defendant's first contention, that she had never made any agreement whatever to pay for the services rendered, the court stated the general rule that the acceptance of valuable services and materials "raises a presumption of intent to pay, or that the services were to be compensated, or a presumption of legal liability, and while such presumption is not conclusive, it is sufficient to throw upon the person contesting liability the burden of showing an agreement or other circumstances indicating that the services were to be gratuitous." In the absence of any facts or circumstances indicating that the services were to be gratuitous, the court concluded, we hold that the defendant had no reason to assume or believe that the services rendered by plaintiff were gratuitous and that the evidence conclusively establishes an agreement implied by law that the defendant would pay the reasonable value of such services.

The defendant also contended however, that the value of the services rendered was a question which should have been submitted to the jury, regardless of the fact that the plaintiff's evidence of the value thereof was undisputed. The defendant denied the amount of the debt, and the only testimony on the subject was given by the physician who owned the hospital. He testified that "they are the usual, regular and reasonable charges for the services rendered." The court stated the general rule to be that the testimony of experts as to the value of professional services is not binding on the jury. Thus, in an action by a physician to recover compensation for professional services, the question of the value of the services is for the jury, even where the evidence of the plaintiff and his expert witnesses as to the value of the services is undisputed. The reason for this rule, said the court, is that while the testimony of an expert witness may not be arbitrarily rejected, it may be weighed by the jury in the light of their knowledge and experience, and if, when so weighed, it is found at variance with their knowledge or experience, they may accord it such weight as they deem proper in determining the value of services rendered. Such evidence, although standing alone, is not conclusive, and does not justify the refusal of the trial court to submit that question to the jury. Because the trial court in this case refused to submit the question of the reasonableness of the plaintiff's fees to the jury, the judgment in favor of the plaintiff was reversed and the case remanded for a new trial.—*Pigoee v. Mercy Hospital, 186 P. (2d) 817 (Okla., 1947).*

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

18: 185-272 (March) 1948. Partial Index

*Development of a Single Standard Slide Test for Syphilis. B. S. Kline. -p. 185.
Cardiolipin Antigens in Serologic Tests for Syphilis. A. S. Giordano, C. S. Culbertson and Margaret V. Higginbotham. -p. 193.
Cardiolipin Blood Tests in Syphilis. J. J. Andujar, M. M. Anderson and E. E. Mazurek. -p. 199.
*Clinical and Serologic Evaluation of 27,103 Consecutive Slide Tests with Cardiolipin-Lecithin Antigen and Kline Antigen. B. Levine, B. S. Kline and H. Sa'esemguth. -p. 212.
*The V.D.R.L. Slide Test. A Comparison with the Mazzini, Kahn and Kolmer Tests for Syphilis. D. Widelock. -p. 218.

Standard Test for Syphilis.—According to Kline, a standard test for syphilitic reagin should possess the advantages of maximum specificity, maximum sensitivity, maximum uniformity of results, maximum simplicity and maximum rapidity. An optimal mixture of chemically pure cardiolipin obtained from beef heart and purified lecithin from the same source has been observed in tests for syphilis to give results of maximum sensitivity and of much greater specificity than obtainable with present day antigen extracts; accordingly, it may be used as a base for the development of a single standard test for syphilis. Studies showed that cholesterol, isotonic solution of sodium chloride and a certain minimal amount of water to disperse completely the antigen particles should be used in the preparation of the cardiolipin-lecithin antigen emulsion. The reading of results is facilitated by adding glycerin to the antigen. The flocculation reaction, which requires two ingredients and little time, is much better suited for use in a standard test for syphilis than is the complement fixation reaction, which requires five ingredients and much time. The slide flocculation test technic employs concentrated emulsion, optimal ratio of emulsion to serum and mixture of the ingredients on an open glass slide in wax-ringed chambers by rapid rotation. This technic offers more advantages for a standard test for syphilis than does the tube flocculation technic.

Cardiolipin and Kline Antigens.—Levine and his co-workers report a clinical and serologic evaluation of 27,103 comparative slide tests for syphilis with optimal cardiolipin-lecithin antigen and Kline antigen in general hospital and ambulatory patients and in persons presenting themselves for antepartum and premarital examinations. Optimal cardiolipin-lecithin antigen emulsion gave results in the slide test for syphilis of decidedly greater specificity and much greater sensitivity than did diagnostic Kline antigen emulsion and therefore is of greater value than the latter in the diagnosis of the disease. Optimal cardiolipin-lecithin antigen emulsion gave results in the slide test of decidedly greater sensitivity in syphilitic serums and much greater specificity in nonsyphilitic serums than did Kline exclusion antigen emulsion and therefore, when negative, serves better than the latter in the exclusion of syphilis. Optimal cardiolipin-lecithin antigen gave results of maximum specificity and maximum sensitivity in slide tests of the blood of newborn infants of five treated syphilitic mothers. Optimal cardiolipin-lecithin antigen is now being used as the standard antigen for the Kline test. The Kline antigen is employed as an adjunct of confirmatory value.

Venereal Disease Research Laboratory Slide Test.—Widelock compared the Venereal Disease Research Laboratory slide test, which employs a cardiolipin-lecithin-cholesterol antigen, with the Mazzini and Kahn flocculation tests and the Kolmer complement fixation test in 52,372 routine specimens submitted to the Bureau of Laboratories of the New York City Department of Health. The reliability of the Mazzini slide test as a screen test in a large public health laboratory is evidenced by the fact that of 8,425 "negative" Mazzini serums only 74 (0.8 per cent) were reactors to the research laboratory's test. The Kolmer complement fixation test produced approximately the same number of reactors in this group. The relative reactivity of the laboratory's slide, the Kahn standard and the Kolmer complement fixation tests was 83.6 per cent, 57.4 per cent and 64.2 per cent, respectively, of the Mazzini reactors tested. Thus the sensitivity of the four tests, in order of reactivity was: the Mazzini slide test, the research laboratory's slide test, the Kolmer complement fixation test and the standard Kahn test.

American Journal of Medicine, New York

4: 159-312 (Feb.) 1948

Observations on Normal Young Women Given Synthetic 11-Dehydrocorticosterone Acetate. F. Hoeburger, J. C. Abels and N. F. Young. -p. 163.
Effects of Synthetic 11-Dehydrocorticosterone (Compound A) in Subject with Addison's Disease. H. G. Sprague, C. F. Gastineau, H. L. Mason and H. H. Power. -p. 175.
Sodium Loss in Man Induced by Desoxycorticosterone Acetate. Study in Subject with Myotonic Dystrophy. K. L. Zierler and J. L. Lilienthal Jr. -p. 186.
Effect of Increasing Blood Volume and Right Atrial Pressure on Circulation of Normal Subjects by Intravenous Infusions. J. V. Warren, E. S. Brannon, H. S. Weens and E. A. Stead Jr. -p. 193.
*Value and Limitations of Thymol Turbidity Test as Index of Liver Disease. M. G. Kunkel. -p. 201.
*Liver Function Tests in Differential Diagnosis of Jaundice. T. L. Althausen. -p. 208.
*Minimal Yet Adequate Program of Liver Function Studies in Differential Diagnosis of Jaundice. H. Shay and H. Siplet. -p. 215.
"Blast Hypertension" Elevated Arterial Pressures in Victims of Texas City Disaster. A. Ruskin, O. W. Beard and R. L. Schaffer. -p. 228.
Coexisting Auricular Fibrillation and Complete Heart Block. E. A. Hanna and H. L. Smith. -p. 237.
Electrocardiographic Patterns of Ventricular Aneurysm. E. Goldberger and S. P. Schwartz. -p. 243.

Thymol Turbidity Test in Disease of the Liver.—Kunkel found that in a group of 76 patients with infectious hepatitis who were followed throughout their illness the thymol turbidity test showed a maximal value that was higher than the highest value obtained in a control group of 46 patients. The results would appear to demonstrate the value of this reaction for the diagnosis of acute hepatic damage. No correlation between severity of symptoms and degree of aberration in the thymol turbidity test could be found. The test proved to be of particular use in evaluating persistent symptoms fol-

lowing infectious hepatitis. Patients with cirrhosis of the liver associated with chronic alcoholism showed considerably lower values for the thymol turbidity test than did patients in a nonalcoholic group. Decidedly positive reactions were associated with hyperglobulinemia in various parasitic diseases and other conditions in which an inflammatory process in the liver was present.

Liver Function Tests in Jaundice.—Althausen discusses the pathologic physiology of different types of jaundice and its relation to excretory and metabolic liver function tests. He analyzes the results of the intravenous galactose test and the response of prothrombin to vitamin K in the differential diagnosis of the disease of 190 patients with jaundice. He points out the importance of distinguishing between obstructive jaundice, for which surgical operation is the only effective treatment, and parenchymatous jaundice, which constitutes a strictly medical problem. The usefulness of the intravenous galactose test is demonstrated by the fact that, when taken alone, it made possible the differentiation between obstructive and parenchymatous jaundice in 3 out of 4 cases. When taken in conjunction with certain simple additional clinical data, this test allowed the identification of the type of jaundice in almost all cases. The diagnostic accuracy of the prothrombin response to vitamin K is shown by the fact that it was present in 9 of 10 patients with obstructive jaundice and was absent in the same proportion of patients with parenchymatous jaundice. The author concludes that appropriate liver function tests are an important aid in the differential diagnosis of jaundice when taken in conjunction with data from the history, physical observations and other laboratory studies.

Liver Function Studies.—Shay and Siplet believe that adequate liver function studies may be made in jaundice with the following tests: quantitative van den Bergh, serum cholesterol partition, serum alkaline phosphatase and thymol turbidity. If the physician has only limited laboratory facilities available, he can still follow a case of jaundice by combining the methylene blue test, the galactose tolerance test and the thymol turbidity test. If applied early in the course of jaundice and repeated at short intervals (three to four days for a period of a week; three sets of readings) these tests will usually permit identification of the type of jaundice.

American J. Obstetrics and Gynecology, St. Louis

55:189-366 (Feb.) 1948

Blood Volume in Pregnancy: Critical Review and Preliminary Report of Results with New Technic. C. E. McLennan and L. G. Thouin. -p. 189.
Malignant Tumors of Ovary. J. B. Montgomery. -p. 201.
Advanced Ectopic Pregnancy: Report of 3 cases. K. M. Wilson, W. L. Ekas and J. H. Schultz. -p. 218.
Intrauterine Pack in Management of Postpartum Hemorrhage. Lois A. Day, R. D. Mussey and R. W. DeVoe. -p. 231.
Maternal Congenital Heart Disease as Obstetric Problem. C. J. Lund. -p. 244.
*Treatment of Cervix Carcinoma with Radium and 800 Kilovolt X-Ray. H. E. Schmitz. -p. 262.
Pelvic Delivery Following Cesarean Section. D. H. Hindman. -p. 273.
Arrest of Abnormal Uterine Bleeding with Pitressin Tannate in Oil. R. C. Benson. -p. 286.
Evaluation of Results of Carcinoma of Cervix Uteri Treated by Radical Vaginal Operation. S. Mitra. -p. 293.
Carcinoma of Cervix Complicating Procidentia Uteri. Dorothy L. Ashton. -p. 299.
Comparison of Accuracy in Diagnosis of Vaginal Smear and Biopsy in Carcinoma of Cervix. Ruth M. Graham, S. H. Sturgis and J. McGraw. -p. 303.
Pregnancy Following Tubal Sterilization. W. J. Dieckmann and Elizabeth R. Hauser. -p. 308.
*Penicillin Vaginal Suppositories and Prevention of Postpartum Morbidity. R. R. Pierce. -p. 313.
Nine-Year Follow-Up in Cases of Toxemia of Pregnancy. F. P. Light. -p. 321.
Heparin in Treatment of Toxemia of Pregnancy: Preliminary Report. J. V. S. Hoech and H. Zilliacus. -p. 326.
*Pregnancy and Multiple Sclerosis. L. H. Douglass and C. L. Jorgenson. -p. 332.

Radium and Roentgen in Carcinoma of the Cervix.—Schmitz reviews observations on patients with cervical cancer treated at Mercy Hospital Institute of Radiation Therapy during the ten year period between 1933 and 1942. It was at the beginning of this period that higher voltage roentgen therapy was first introduced at the institute. The plan of radium therapy has remained the same since 1924. A direct comparison of cases for the ten years of this study with the cases previously reported would show any advantage gained by the addition of higher voltage roentgen rays. The aim is to attain dose of 4,000 r into the tumor and surrounding gland-bearing areas of the pelvis. Whenever possible only one anterior and one posterior field are used. The size of the field is 20 by 20 cm. or less, depending on the size of the pelvis. The kilovoltage used is 800. The focus-skin distance is 70 cm., and filtration is done with lead, tin, copper and aluminum. Although the patients experience intense discomfort at the height of the irradiation effect, the acute cystitis, proctitis and enteritis subside with little permanent injury to these structures. Inspection of the pelvis in patients with endometrial carcinoma that has been irradiated similarly and who have been then subjected to hysterectomy has revealed no significant injury to the pelvic viscera. Radium therapy is carried on in conjunction with the roentgen therapy unless the condition of the cervix due to the cancer is such that insertion of radium would be difficult. Then the application of radium is postponed until the tumor has regressed sufficiently to make less difficult the insertion of radium. Fifty milligrams of radium filtered with 2 mm. brass and 3 mm. of para rubber is placed in the cervical canal for thirty hours. This dose is repeated at seven day intervals for a total dose of 4,500 milligram hours. Of the 166 cases reviewed here more than half were inoperable according to present standards. The results obtained with the described irradiation in the groups that were clearly operable were superior to those obtained with surgical treatment in comparable groups. Thus the evidence is in favor of continued radiologic treatment of cancer of the cervix.

Penicillin Vaginal Suppositories to Prevent Postpartum Morbidity.—Pierce says that 778 of 1,573 puerperal women were given 200,000 units of penicillin per vaginam immediately after delivery with a morbidity rate due to infection of the genital tract of only 2.3 per cent. In the control group of 795 cases, the morbidity rate was 5.3 per cent. Blood levels were obtained with intravaginal penicillin in 77.5 per cent of cases on which levels were tested. The authors believe that this administration of penicillin should be of particular value in cases which become morbid after early rupture of membranes and long labor, and in which infection of the genital tract is suspected. The routine use of penicillin vaginal suppositories after delivery is justified because of the reduction of the nursing care required in infected cases, reduction in number of extra hospital days per patient and particularly a reduction in genital tract infection following delivery.

Pregnancy and Multiple Sclerosis.—Douglass and Jorgensen say that 5 cases of multiple sclerosis associated with pregnancy have been seen since 1939 at the University Hospital in Baltimore. In 1 of the women the pregnancy was interrupted at the clinic with which the authors are connected, and in another interruption had been carried out elsewhere, although the authors believed that it should not have been done. The other 3 cases would seem to to warrant the conclusion that pregnancy has little if any effect on multiple sclerosis. The disease is one in which remissions and exacerbations normally occur. The progress is not accelerated by pregnancy nor is pregnancy likely to cause exacerbations. In these 3 cases pregnancy proceeded more or less normally; there were no major obstetric complications, and labor was without special incident. All infants were born alive and in good condition and did well. The puerperium was normal and uneventful.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

59:157-310 (Feb.) 1948

Superficial Spreading Carcinoma of Stomach. R. Golden and A. P. Stout. -p. 157.
Penetrating Wounds of Abdomen. N. Slater. -p. 168.
Significance of Widened Septum Pellucidum. R. M. Loeman, R. Shapiro and Louis C. Collins. -p. 177.
Visualization of Rokitansky-Aschoff Sinuses of Gallbladder During Cholecystography. H. C. Marsh. -p. 197.
Hyositis Ossificans Progressiva in Homozygotic Twins. J. H. Vastine, Mary F. Vastine and O. Arango. -p. 206.
Genetic Influence on Osseous Development with Particular Reference to Deposition of Calcium in Costal Cartilages. J. H. Vastine, Mary F. Vastine and O. Arango. -p. 213.
Anatomic Classification of Cancer of Larynx for Use in Radiation Therapy. E. L. Jenkinson and E. L. Pirkey. -p. 222.
Accumulation of Blood Simulating Primary Bronchial Cancer: Report of Case. J. D. Call and P. P. Vinson. -p. 227.
Radiotherapeutic Eradication of Cancer with Surgical Repair of Subsequent Ulceration and Deformity. H. B. Hunt and D. H. Breit. -p. 229.
Radiation and Surgical Trends in Treatment of Cancer of Cervix Uteri. A. N. Arneson. -p. 251.
Dosage Determination with Radioactive Isotopes. II. Practical Considerations in Therapy and Protection. L. D. Marinelli, Edith H. Quimby and G. J. Hine. -p. 260.
Optical Systems for Photofluorography. G. S. Monk. -p. 282.

Classification of Cancer of Larynx in Radiation.—Jenkinson and Pirkey present data on a group of consecutive cases of cancer of the larynx in patients treated in the Department of Radiology, St. Luke's Hospital, Chicago, from 1936 to 1945. Of the 58 patients, 45 were available for follow-up study. The authors call attention to the fallacy of radiologists' using a surgical classification. They point out that the classification into intrinsic and extrinsic is important to the surgeon, because any lesion that extends beyond the confines of the larynx cannot be cured by laryngectomy. However, from the radiologic point of view, one can expect as good a result from irradiation in an early lesion of the superior aspect of the aryepiglottic fold as in a similar sized lesion on the true cord. It is the extent of the lesion that is the more important prognostic observation, not the location. The authors present a classification which meets most of the needs of the radiologist. This classification requires a complete examination of the larynx, with direct visualization by means of the laryngoscope, and an adequate biopsy. This should be supplemented by roentgenograms of the soft tissue of the neck. The laryngologist must describe the lesion in terms of the extent of structural involvement, particularly to distinguish between neoplasm and inflammatory reaction. Following this thorough examination and biopsy, the anatomic classification should be determined. A stage 4 lesion may, during proper treatment, shrink to the extent of stage 2, or almost completely disappear, but the records should continue to show it in its original classification. The authors were impressed with the excellent results obtained in early lesions. They found that the earlier in the disease radiation treatment is instituted, the better the result.

Dosage Determination with Radioactive Isotopes.—Marinelli and associates show that when radioactive isotopes are employed either as tracers or in therapy, it is important to be able to determine the radiation dosage. Usually this cannot be measured, but when the half-life, radiation energy and biologic uptake and excretion are known it can be calculated. The paper consists of two parts. In the physical part are given mathematic formulas for dosage rates and total doses for beta ray-emitting and gamma ray-emitting isotopes, together with subsidiary formulas for safe concentration and the like. In the clinical part these formulas are accepted, and doses are considered for specific cases, for a number of isotopes of common interest. Particular consideration is given to the determination of safe tracer doses. Two extensive tables, for beta and gamma rays, respectively, give half-life, radiation average energy, fraction disintegrating per day and specific dosage data, including the safe tracer concentration, for thirty-eight isotope elements.

Annals of Allergy, Minneapolis

6:1-98 (Jan.-Feb.) 1948

Clinical Evaluation of New Histamine Antagonist "Decapryn". E. A. Brown, L. R. Weiss and J. P. Maher. -p. 1.
Allergenic (Skin-Test) Activity of Low Ragweed Pollen After Irradiation of Extract with Ultraviolet Light. Nalla Brown and Mary H. Loveless. -p. 7.
Allergic Problems of Gastrointestinal Tract: Report of Cases Seen in Military Service. J. A. Rudolph and C. V. Sage. -p. 11.
Balsam as Cause of Contact Dermatitis in Florist. Louise O. Kappes. -p. 21.
Evaluation of Antistine, New Antihistaminic Substance. A. S. Friedlaender and S. Friedlaender. -p. 23.
Observations on Variations in Reactivity in Case of Allergy to Penicillin. J. Farrington, F. A. Dickerman and W. L. McGowan. -p. 39.
Allergy in Children as Related to Altitude. Julia Baker. -p. 33.
Symptomatic Purpura Occurring with Malaria. H. G. Nelson and J. B. Black. -p. 39.
Use of Micronized Therapeutic Agents by Inhalation with Special Reference to Allergic Pulmonary Conditions. G. V. Taplin and F. A. Bryan. -p. 42.
Specifications Recommended as Guides in Collection and Preservation of Pollens. M. V. Veldee. -p. 56.

Annals of Internal Medicine, Lancaster, Pa.

28:229-520 (Feb.) 1948

Renal Diseases: Some Facts and Problems. L. Leiter. -p. 229.
*Seven Hundred and Twenty-Seven Meningococcic Cases: Analysis. A. L. Hoyne and Rosine H. Brown. -p. 248.
Speculations as to Therapeutic Significance of Penicillin Blood Level. H. Eagle. -p. 260.
*Psychiatric Aspects of Vagotomy: Preliminary Report. T. S. Szasz. -p. 279.
Role of Anxiety in Somatic Disease. M. Gitelson. -p. 289.
U. S. Navy's War Record with Tetanus Toxoid. W. W. Hall. -p. 298.
Rheumatism and Arthritis: Review of American and English Literature of Recent Years. P. S. Hench, W. Bauer, E. W. Boland and others. -p. 309.

Meningococcic Meningitis.—Hoyne and Brown review observations on 727 patients who were admitted to

the Municipal Contagious Disease Hospital in Chicago with a diagnosis of meningococcic meningitis during the four years 1943 to 1946, inclusive. The ages of the patients ranged from 7 weeks to 71 years. The total fatality rate was 14.8 per cent, but if the 67 patients who were moribund on admission are ruled out, the fatality rate is 6.2 per cent. Sulfonamide drugs were used in practically all cases. Sulfadiazine and sulfathiazole were used in over 500 of the total number; sulfamerazine and sulfapyridine were used in 127 and 68 cases, respectively. There were 103 patients who were treated with penicillin as well as one of the sulfonamide compounds, and 2 patients received penicillin exclusively. The fatality rate was much higher in the group treated with penicillin than in the group treated with the sulfonamide drugs alone. The authors also found that intrathecal therapy is not necessary against meningitis. Moreover, frequent lumbar punctures for drainage are not required. Penicillin is not a valuable adjunct in the treatment of meningococcic infections but is an efficient aid in the management of ocular complications. Although blood sulfathiazole levels are low, there is no doubt in regard to this drug's usefulness for the treatment of meningococcic meningitis. The authors question the emphasis which is customarily placed on the value of blood levels of the drug when considering prognosis.

Psychiatric Aspects of Vagotomy.—Szasz made psychiatric studies on 16 patients who had been operated on for peptic ulcer by vagotomy and in all but 1 of whom the ulcer had healed. The chief object of this study was to find out what happens to the patient as a whole after vagotomy. Over half of the patients were helped by vagotomy. Six patients were found to be unchanged from the psychiatric and clinical points of view; the healing of the ulcer, however, confers protection on these patients against future hemorrhage and perforation. One patient became definitely worse following vagotomy and remained psychologically incapacitated. Discussing the role of psychologic factors in the pathogenesis of peptic ulcer, the author says that patients with peptic ulcer have strong receptive-acquisitive tendencies, which obtain some gratification from the usual medical measures used in the treatment of peptic ulcer; vagotomy brings about healing of the ulcer without providing for these important emotional needs. This explains why some patients insist on continuing with some part of their medical regimen after vagotomy, when the physiologic needs for such treatment are no longer present. Psychoanalysis, although the only etiologic treatment in most cases of peptic ulcer, is not available for the large majority of patients. For those patients who do not respond adequately to the usual medical ulcer regimens and who will not be treated psychoanalytically, vagotomy is probably the treatment of choice. The absence of symbolic oral gratification due to cessation of dietary and other medical measures following vagotomy may be potentially harmful. It is suggested that the clinical results may be improved somewhat if the patients are permitted to continue with certain psychologically meaningful aspects of their preoperative medical regimens after vagotomy.

Bull. of U. S. Army Med. Dept. Washington, D. C.

8: 165-246 (March) 1948. Partial Index

Treatment of Bacterial Food Poisoning. S. C. Burch. -p. 199.
Early Treatment of Chest Wounds by Intrapleural Suction. W. H. Berry. -p. 211.
Nephritis and Nephrosis. B. I. Kaplan. -p. 219.
Surgical Aspect of Bronchiectasis. W. Crandell. -p. 223.
Subacute Bacterial Endocarditis. T. H. Hunter. -p. 229.
Normal Renal Function and Pathologic Physiology in Renal Failure. J. Redish. -p. 232.
Anaerobes and Leukocoid Reaction Complicating Gas Gangrene. F. Perlman. -p. 240.
Otitis Externa. A. T. Gordon. -p. 245.

Experimental Medicine and Surgery, Brooklyn

6: 1-122 (Feb.) 1948. Partial Index

Experimental Observations on Augmented Unipolar Extremity Leads. H. Kisch. -p. 1.
Experimental Production of Epithelial Growth in Rabbit's Cornea. E. Weiromky. -p. 9.
Effect of Various Agents on Excretion of Uric Acid and Allantoin. G. J. Martin. -p. 24.
Intrathoracic Electrocardiography in Patients with Pneumothorax. F. M. Groedel and P. H. Borchardt. -p. 45.

Georgia Medical Association Journal, Atlanta

37: 39-66 (Feb.) 1948

Georgia's Plan for Increased Hospital Facilities and Health Centers. G. G. Lunsford. -p. 39.
Paranasal Sinus Infection in Infants and Children. T. S. Burgess. -p. 44.
Trends in Pediatric Immunology. W.C. Boswell. -p. 47.
Georgia's Hospital Construction Program. J. E. Hanson. -p. 51.

Indiana State Medical Assn. Journal, Indianapolis

41: 185-276 (Feb.) 1948

Current Status of Influenza Vaccines. L. T. Coggeshall. -p. 203.
*Streptomycin in Treatment of Tularemia. L. Foshay. -p. 207.
Cerebral Palsy. C. D. Wertz. -p. 211.
Exchange Transfusion for Erythroblastosis Fetalis. A. B. Cavins. -p. 214.
Second Report on Intrathecal Penicillin in Central Nervous System Syphilis. J. R. Thrasher, J. Gosman and G. B. Beeman. -p. 216.

Streptomycin in Tularemia.—Patients whose case histories are reviewed by Foshay were treated at Cincinnati Hospitals, or their records had been published before or were supplied by physicians. Many patients were treated during years when streptomycin was scarce, and for this reason the composition of the treated group shows a high degree of selection with respect to extensive and severe infections. Streptomycin was usually administered by intramuscular injection every three or four hours, occasionally by continuous intravenous or subcutaneous drips. There was little advantage in the latter procedures. Dosage ranged from 0.015 Gm. every four hours to 0.5 Gm. every three hours, the total dosage varying from 0.64 to 42 Gm. per patient. Fever is commonly in or near the normal range within forty-eight or seventy-two hours. A striking release from headache, mental depression and bodily aches and pains often occurs within the first day. By the third day there is usually a definite reduction in the size of buboes, lessened pain in those regions and in the primary lesions, and occasionally early healing of primary ulcers. Stuporous patients with extensive pneumonic or serosal cavity exudates usually show reversion to mental clarity in from two to five days. Clearing of exudates is usually completed in five to six weeks. Comparison of results obtained with streptomycin and with hyperimmune serum revealed that streptomycin induced better results in most of the major aspects of morbidity even though it was administered later in the course of disease by an average of three days. The disease was shortened about one half by streptomycin therapy. Since dramatic recoveries of some patients in

the desperately ill category, have followed the use of 2 to 5 Gm. as total dosage it seems reasonable to conclude that dosage in excess of 10 Gm. is a waste of a valuable product as well as an invitation to toxic and other untoward reactions. There is evidence that a total administration of 2 or 3 Gm. per patient will usually be sufficient. Streptomycin is an extremely effective therapeutic agent against tularemia.

Industrial Medicine, Chicago
17: 1-34 (Jan.) 1948

Silicosis Study and Management in Calumet Industrial Area. C. W. Rauschenbach, D. R. Johns, J. F. Larrabee and others. -p. 1.
Cardiovascular Problems in Railroad Industry. R. W. Edmonds and H. Feil. -p. 7.
Thermal Burns. G. S. Bergh. -p. 9.
*Secondary Closure of Wounds of Hand. H. L. Mason. -p. 12.
Indications for Sympathetic Block and Sympathectomy in Traumatic and Associated Conditions. T. R. Adams. -p. 17.
Dental Relations in State Industrial Hygiene Program. E. R. Aston. -p. 21.
*Sodium Bicarbonate. Occupational Medical Problem. E. W. Probst and F. B. Lanahan. -p. 24.

Wounds of Hand.—Mason shows that the surgeon confronted with a serious open wound of the hand is often in a dilemma as to what to do. There may be extensive nerve and tendon division, but the strict indications for primary repair do not obtain. The wound may be seriously contaminated, and there may have been many hours of delay. Regardless of the previous treatment or of the wound's gross soiling, it should be covered at once with sterile dressings and manipulation or inspection should not carried out until it can be done under aseptic conditions. Invasive contaminants come from human sources, the nose and throat and hands of surgeon, assistants, nurses, orderlies, interested bystanders and the patient himself. The wound should be converted into a surgically clean wound at the earliest possible moment and should be covered with voluminous occlusion compression dressing; the hand should be put at rest on a splint. The wound managed in this way has been carried up to the point of closure, and in the early wound would be considered ready to close. In the injury under discussion, it is dressed and splinted and four to six days are allowed to elapse. It is customary to give penicillin during this interval, but a large percentage of patients would do well without it. Secondary closure of the wound may be undertaken if there is no evidence of infection by the fourth to sixth day. After closure the hand is again put at rest on a splint," where it is kept until healing has occurred. Here the universal hand splint is found useful. The hand remains in the position of function during the entire period of healing. Practically every fracture of the hand may be successfully reduced on this splint.

Sodium Bicarbonate in Occupational Medicine.—In the process considered by Probst and Lanahan sodium bicarbonate is used as a powder to keep plastic sheeting from adhering to itself. Although the powder is first applied to the plastic sheeting at room temperature, it is exposed in some parts of the process to a dry heat which may be as high as 190 F. (88 C.) Personnel exposed to the powder in all stages and temperatures of the operation were studied by occasional and annual examinations. The total number studied was 448, representing exposure periods extending from three months to nine years. In 46 employees an eruption of the thoracic and axillary areas and exposed surfaces of the extremities developed. This eruption was a papuloerythematous reaction. In a few cases it extended to exudation and crust formation. Perspiration and friction aggravated the irritation, and scratching superimposed secondary infections in a few cases. The etiologic basis of each case was suggested by appearance of the eruption during the first few weeks of exposure to this powder. All but 2 persons were carried through to skin hardening (as observed by Schwartz) by continuation in the exposure and adherence to hygienic measures. Associated with the dermatitis were changes in hair coloring and texture. Black hair turned brown to brownish red and blond hair was bleached to lighter yellow tints. Texture of hair coarsened and became brittle, but alopecia did not develop. Coincident with cutaneous adjustment, these changes of the hair lost their intensity. Upper respiratory reactions of sneezing, rhinorrhea and dryness of nasal and pharyngeal membrane were passing effects. The hazardous effects of this compound were minimized by an active medical control program.

Journal of Infectious Diseases, Chicago
82: 1-100 (Jan.-Feb.) 1948 Partial Index

Effect of Oxygen Tension on Plasmodium Gallinaceum Malaria in Chicks. L. A. Tertian and L. H. Sano. -p. 1.
Reduction in Immunity in Chicken Malaria Following Treatment with Nitrogen Mustard. W. H. Taliaferro and Lucy G. Taliaferro. -p. 5.
Antigenic Components of Lactobacilli of Human Oral Origin. N. B. Williams. -p. 31.
Primary Pneumonic Plague in Hokkaido, 1946, and Report of 39 Cases with 3 Recoveries. T. H. Tieh, E. Landauer, F. Miyagawa and others. -p. 52.
Studies on Transmission and Control of Respiratory Disease Within Army Barracks. C. G. Loosli, H. M. Lemon, H. Wise and O. H. Robertson. -p. 59.
Evaluation of Ultraviolet Radiation and Dust Control Measures in Control of Respiratory Disease at a Naval Training Center. W. R. Miller, E. T. Jorrett, T. L. Dillmon and others. -p. 86.

Journal of Nutrition, Philadelphia
32: 137-286 (Feb.) 1948. Partial Index

Supplemental Value of Certain Amino Acids for Beef Protein. R. Hoagland, A. R. Ellis, O. G. Hankins and G. G. Snider. -p. 167.
Isoleucine Requirement of the Infant. A. A. Albanese, L. E. Holt Jr., Virginia I. Davis and others. -p. 177.
Role of Vitamin D in Utilization of Phytin Phosphorus. R. R. Spitzer, G. Maruyama, L. Michaud and P. H. Phillips. -p. 185.
Availability of Riboflavin of Ice Cream, Peas and Almonds Judged by Urinary Excretion of Vitamin by Women Subjects. G. Everson, Elizabeth Wheeler, Helen Walker and W. J. Caulfield. -p. 209.
Comparison of Vitamin A Liver Storage Following Administration of Vitamin A in Oily and Aqueous Media. A. E. Sobel, M. Sherman, Jacqueline Lichtblau and others. -p. 225.
Niacin Excretion in Rat in Relation to Tryptophane, Pyridoxine and Protein Content of Diet. Grace H. Bell, R. T. Scheer and H. J. Deuel Jr. -p. 239.
Mineral Metabolism Studies in Dairy Cattle: II. Effect of Calcium and Manganese and Other Trace Elements on Metabolism of Lipids During Early Lactation. G. M. Ward and J. T. Reid. -p. 249.
Biologic Value of Protein of Field Pea Products with Comparison of Several Methods Used for This Determination. Hazel C. Murry. -p. 257.
*Effects of B Vitamins, Liver and Yeast on Atabrine Toxicity in Rat. B. H. Ershoff. -p. 269.
Self Selection of Diet: VII. Effect of Age and Pregnancy on Selection. E. M. Scott, Sarah J. Smith and Ethel L. Verney. -p. 281.

Vitamin B and Quinacrine Toxicity.—Ershoff found that the administration of toxic doses of quinacrine to immature female rats maintained on a synthetic ration resulted in retardation of growth, alopecia, inhibition of ovarian development, enlarged submaxillary glands, granulocytosis and myocardial damage. These effects were largely counteracted by the addition of desiccated whole liver or yeast

to the basal ration and, to a lesser extent, by the administration of additional vitamins of the complex B. Whole liver was more effective than yeast or the additional B vitamins in promoting growth and ovarian development in the immature quinacrine-fed rat. On quinacrine-free rations abnormalities were not observed on any of the diets employed.

Michigan State Medical Society Journal, Lansing
47: 1-120 (Jan.) 1948

Surgical Treatment of Carcinoma of Breast. S. B. Harrington. -p. 41.
Psychotherapy Aided by Meduna's Carbon Dioxide Treatment. P. H. Wilcox. -p. 50.
Reiter's Syndrome. R. F. Riggers. -p. 56.
B. Coli Meningitis in Puerperal State: Report of 2 Cases. Kathryn J. McMorrow and F. H. Top. -p. 62.
Senile Cataract from Standpoint of General Practitioner. C. S. O'Brien. -p. 64.

New England Journal of Medicine, Boston
238:241-278 (Feb. 19) 1948

Which Type Cesarean Section? R. J. Heffernan and C. L. Sullivan. —p. 241.
Work of Physical-Fitness Clinic. W. H. P. Emerson. —p. 249.
Medial Ptosis of Kidney: New Renal Syndrome. G. C. Prather. —p. 253.
Device for Controlled Negative Pressure. J. S. Willet. —p. 258.
"Nephrotic Syndrome". S. E. Bradley and C. J. Tyson. —p. 260.
Benign Prostatic Hypertrophy, with Obstruction. —p. 266.
Adenocarcinoma of Stomach, Pancreatic Cyst. —p. 268.

238:279-310 (Feb. 26) 1948

Internal Public Relations. J. R. Miller. —p. 279.
*Postarsenical Encephalopathy in Treatment of Syphilis in Women. S. C. Kasdon and W. W. Shapiro. —p. 282.
Meningococcal Pneumonia: Report of 2 Cases with Meningococcal Effusion in One. I. H. Brick. —p. 289.
*Unusual Complication of Intestinal Intubation. A. G. Brenizer Jr. —p. 291.
*Significance of "Tics" as Possible Manifestations of Epilepsy. S. Levin. —p. 293.
Infectious Mononucleosis with Intense Jaundice of Long Duration. H. L. Abrams. —p. 295.
Urology. F. H. Colby. —p. 297.
Epidermoid Carcinoma of Bronchus, Giant Follicular Type of Malignant Lymphoma of Lymph Nodes. —p. 300.
Primary Atrophy of Adrenal Cortex: Addison's Disease. —p. 302.

Postarsenical Encephalopathy.—Kasdon and Shapiro present histories and postmortem data on 2 women who were treated with neoarsphenamine for asymptomatic syphilis and who died from postarsenical encephalopathy. The first woman, aged 34, was pregnant. Convulsions developed three days after the second injection of neoarsphenamine, and eclampsia was first considered. The authors cite the following factors as decisive in differentiating postarsenical encephalopathy from eclampsia: a positive history of arsenical treatment, usually within three days; no hypertension; no albuminuria; no edema, and no toxic symptoms. The second case, which concerned a woman aged 31, was somewhat less typical than the first. In this patient the symptoms did not appear until fifteen days after the twenty-third injection. The course of the disease and the necroptic changes were typical. Therapy should include sedation and, most important of all, early administration of BAL. Adequate treatment succeeds in lowering the over-all mortality rate from 70 to 11 per cent. The most essential fact in control of this serious complication of treatment with arsenical preparations is the application of therapy before the onset of coma and convulsions. The prodromal symptoms that precede the onset of coma and convulsions are headache, epigastric distress, restlessness and nausea or vomiting, or both. The use of penicillin in the treatment of syphilis during pregnancy may eliminate encephalopathy.

Unusual Complication of Intestinal Intubation.—Brenizer reports a case in which a mercury-weighted Miller-Abbott tube spontaneously coiled and tied itself into a knot in the jejunum proximal to an obstructing omental adhesion. This complication was apparently produced by the use of a flexible tube, previously deformed by long storage in a tight coil. Intestinal tubes should be stored without coiling deformity, and their progress through the intestine should be followed by roentgenologic observations.

Tics as Manifestations of Epilepsy.—Levin reports 3 instances in which tics appeared to be manifestations of epilepsy. All 3 patients manifested epileptic dysrhythmias when they were examined by electroencephalography. The author's opinion that these 3 cases represent atypical forms of myoclonic epilepsy is favored by the electroencephalographic observations of 3 per second spike and wave dysrhythmia, which, according to Lennox, is characteristic of myoclonic epilepsy as well as petit mal and akinetic epilepsy. Tics have a resemblance to myoclonic jerks, and although in the usual forms of myoclonic epilepsy brief contractions of muscles in the upper extremities occur, at times similar contractions of other muscles are seen.

238:311-344 (March 4) 1948

Occurrence of Extensor Spasm in Patients with Complete Transection of Spinal Cord. M. B. Macht and H. A. Kuhn. -p. 311.
*Fatal Acute Pancytopenia Following Tridione Treatment. T. J. Carnicelli and C. G. Tedeschi. -p. 314.
Neurologic Complications of Trichinosis: Report of 2 Cases. J. C. Skinner. -p. 317.
Acanthosis Nigricans: Report of Case Associated with Thyroid Cancer. B. H. Kaufman and H. F. Tilley. -p. 320.
*Morphine Hypersensitivity in Kyphoscoliosis. K. H. Katz and H. L. Chandler. -p. 322.
Abdominal Surgery. A. W. Allen. -p. 324.
Congenital Heart Disease: Tetralogy of Fallot: Acute and Chronic Rheumatic Endocarditis, with Stenosis Involving all Valves. -p. 331.
Carcinoma of Gall Bladder, with Extension to Small Intestine, Acute Gangrenous Appendicitis, with Perforation and Abscess Formation. -p. 334.

Fatal Acute Pancytopenia Following "Tridione" Treatment.—Carnicelli and Tedeschi describe a fatal case of acute pancytopenia following the use of "tridione" (trimethadione). In this case, as in 2 similar cases reported in the literature, a condition of aplastic anemia accounted for the fatal course of events. No other factor could be incriminated. As in the case reported by Mackay and Gottstein, the hematic condition developed several months after the patient was receiving the medicament; the onset was abrupt and sudden, and no available treatment could prevent the fatal outcome. A note of caution is sounded regarding the administration of this drug and its potential danger, as well as the necessity of frequent examinations of the blood. A plea is made to limit the use of "tridione" to the control of true petit mal seizures.

Morphine Hypersensitivity in Kyphoscoliosis.—Katz and Chandler describe 2 cases exemplifying the adverse effects of morphine on kyphoscoliotic patients with pulmonary cardiac failure. The major physiologic and pathologic factors in the causation of this sensitivity are discussed. The authors do not believe that the exaggerated effect from morphine is in any way specific for patients with kyphoscoliosis. Their experience suggests that any patient suffering from long-standing disease of the

lung with pulmonary decompensation complicated by heart failure presents similar predisposing handicaps, which might make the added effects of morphine lethal. A sampling of recent case records at the Boston City Hospital of patients with chronic cor pulmonale without kyphoscoliosis lends further support to the impression that these patients are often adversely affected by morphine.

New Orleans Medical and Surgical Journal

100:297-344 (Jan.) 1948

Pathogenesis of Edema of Congestive Heart Failure. E. H. Wexler. -p. 297.
Hypertrophic Pyloric Stenosis. H. O. Barker, H. H. Hardy Jr. and H. A. White. -p. 307.
Treatment of Chronic Anemia. N. W. Voorhies. -p. 310.
Radiation Treatment in Cancer. S. Hatchette. -p. 316.
Functional Conditions of Nose. J. Stone. -p. 322.

100:345-396 (Feb.) 1948

Chemotherapy and Antibiotics. M. Finland. -p. 345.
Surgical Use of Chemotherapeutic and Antibiotic Agents. C. Lyons. -p. 358.
Use of Antibiotics in Pediatrics. G. W. Salmon. -p. 361.
Sulfonamides and Antibiotics in Otolaryngology. G. F. Joseph. -p. 367.
Adult Hypothyroidism and Myxedema: Review of the Diagnostic Data in 151 Cases. N. Burnstein. -p. 374.
Human Isoimmunization. J. W. Davenport Jr. -p. 376.
New Method of Treating Peptic Ulcers with Penicillin Gastric Drip: Preliminary Report. R. W. Young. -p. 379.
Use of Curare in Tetanus. E. Z. Browne and H. A. Stone. -p. 382.

Ohio State Medical Journal, Columbus

44:113-224 (Feb.) 1948

Chemotherapy in Infants and Children. I. Sulfonamides. J. G. Kramer. -p. 145.
Propylthiouracil and Methyl Thiouracil in Treatment of Hyperthyroidism. E. P. McCullagh and H. W. Schneider. -p. 149.
*Thrombocytopenic Purpura Hemorrhagica. C. R. Hittershofer. -p. 154.
*Contraindications and Indications for Pentothal Sodium. R. Sommerfield. -p. 159.
Intracapsular Cataract Extraction. E. J. Benasa. -p. 161.
Experiment with Uterine Cervical Smears in Diagnosis of Genital Malignancies. G. M. Wilcoxon and F. H. Falls. -p. 165.
Dissecting Aneurysm of Middle Cerebral Artery. T. L. Ramsey and V. T. Mosquera. -p. 168.

Thrombopenic Purpura Hemorrhagica.—According to Hittershofer, thrombopenic purpura hemorrhagica comprises a group of closely related hemorrhagic diseases characterized by reduction in the number of circulating platelets, prolonged bleeding time, decrease in capillary resistance and spontaneous frank bleeding from mucous membranes and bleeding into the skin causing petechiae and ecchymoses. One group of workers believes that thrombopenic purpura is brought about by hyperactivity of the spleen in destroying platelets. In favor of this view is the benefit obtained by splenectomy. Others stress the view that the cause of chronic thrombopenic purpura is in the bone marrow. This view is based on the observation that all factors which depress the bone marrow lower the platelet count. Thus, agents such as benzene, roentgen rays, radium and bacterial toxins, and neoplastic metastases, all produce a reduction in platelets. Since a severe thrombopenia is almost invariably found in hemorrhagic purpura, one is apt to conclude that the bleeding is dependent on a deficiency of platelets. A study of purpuric cases shows, however, that some patients bleed at a platelet level of 60,000 or higher while others may show only mild purpura with 20,000 platelets or less. The diagnosis of thrombopenic purpura rests on reduction in the platelet count, prolongation of the bleeding time, positive tourniquet test, absent clot retraction and a normal or only slightly prolonged coagulation time. Acute leukemia and aplastic anemia may be confused with thrombopenic purpura, but the appearance of myeloblasts or lymphoblasts suggests leukemia. Examination of sternal bone marrow should leave no further doubt, for a striking increase in immature leukocytes indicates leukemia, and in applastic anemia little regeneration of the blood elements occurs. Infection plays an important role in secondary purpura hemorrhagica. Search for foci of infection is important. Metastases to the bone marrow cause a reduction in the number of platelets. Toxic agents such as benzene and arsphenamine and allergic sensitivity may do the same. For adults removal of the spleen has consistently given good results in thrombopenic purpura. In children, however, splenectomy must be considered as a last resort. There is no justification for subjecting a patient to splenectomy before the most frequent causes of secondary purpura, namely, infection, blood dyscrasias and allergy, are ruled out. Repeated transfusion of blood is effective in idiopathic purpura hemorrhagica. Transfusion just before splenectomy is now the almost universal surgical practice. Ascorbic acid therapy can only be effective in those instances of capillary bleeding in which there is a deficiency of the vitamin.

"Pentothal Sodium."—Sommerfield believes that because of the seeming simplicity of the procedure "pentothal sodium" is being administered by many with immature anesthetic judgment. The casual and infrequent administrator should limit use of this drug to the so-called average case, i.e., one of short duration and in which no special skill is required. Most contraindications to the use of "pentothal sodium" are relative, but the inability to maintain a clear airway, whether that inability arises from the physical condition of the patient, the site of operation or failure of the anesthetist to realize that he is not succeeding in keeping the air passage open, is an absolute contraindication to the use of this anesthetic. The unavailability of oxygen under pressure likewise is a definite contraindication to use of "pentothal." The indications for the use of this agent have increased. Originally it was intended to be a complete anesthetic, but because of its limitations as such, newer technics were developed. Its field of usefulness has been greatly widened by its use in combination with regional, spinal and inhalational agents, and curare. Conditions which only a short time ago were regarded as contraindications to "pentothal" are no longer considered as such. Patients with hepatic disease, in shock, undergoing operations about the oropharynx and nasopharynx or intra-abdominally can be anesthetized with this agent in combination with others.

Philippine Medical Association Journal, Manila

24:1-58 (Jan.) 1948

*Experimental Liver Cancer in Rats Produced by Butter Yellow. J. Z. Sta. Cruz. -p. 1.
What We May Learn From American Ophthalmologists. G. De Ocampo. -p. 15.
Endemicity of Schistosomiasis Japonica in Sorsogon, Southeastern Luzon. T. P. Pesigan. -p. 19.
Intestinal Obstruction Secondary to Ascariasis in Children. A. V. Tupas and S. Mañalac-Morales. -p. 29.
Experiences in Use of Non-Absorbable Sutures: I. Alloy Stainless Steel Wire Sutures. L. F. Torres Jr. and P. M. Recio. -p. 33.
Experiences in Use of Non-Absorbable Sutures: II. Abaca Fiber Sutures. P. M. Recio. -p. 37.

Cancer of Liver Produced by Butter Yellow.—According to Sta. Cruz, primary carcinoma of the liver is a problem of the rice consuming people of the Orient. Statistical studies of primary cancer of the liver in Oriental countries show that it

has an incidence of 4 to 5 per cent of all cancers, while in Europe and America it is only 0.2 of 1 per cent. The author fed rats with rice to which the carcinogenic agent butter yellow had been added. Butter yellow is p-dimethyl aminoazobenzene. The feeding of albino rats with butter yellow in a diet deficient in vitamin B produced a high incidence of primary carcinoma of the liver or hepatoma. Animals died or were killed in different periods of the experiment, thus it was possible to observe various types of lesions more or less in accordance with the time of survival of the rats. Animals surviving less than thirty days had acute serous hepatitis. Those surviving forty to fifty days showed adenoma of the bile ducts. Fibrosis or annular cirrhosis was observed in those surviving sixty to one-hundred days. Carcinoma or hepatoma was seen in those animals surviving for from one hundred and one to four hundred and sixty-six days. The author points out that the frequency of round cell infiltration in necropsies of supposedly normal livers among Filipinos was interpreted by American pathologists as a reaction of parasitism. The constant observation of this lesion in rats free from parasites can be considered a reaction of vitamin B deficiency in the diet, which is a problem in Oriental countries. The bile duct hyperplasia and adenomatosis (bile duct adenoma), which were prominent lesions of the liver in rats in the first three months of the experiment, may be considered the specific action of butter yellow on the bile ducts of rats, because similar lesions are not encountered in human livers. The 18 cases of carcinoma in this series were all hepatomas originating from the liver cells, none from the bile ducts. The diagnoses of cholangiomas of the liver refer probably to the adenomatous and cholangiomatous type of hepatoma originating from hepatic cells. This is in accord with the high incidence of hepatomas and the infrequent occurrence of cholangiomas in man. Almost all the hepatomas were accompanied or rather preceded by annular cirrhosis of the portal type. This is also observed in human hepatomas. The presence of cirrhosis is a reliable differentiating point in favor of hepatomas. Cirrhosis is seldom seen in metastatic carcinomas of the liver in man.

Proc. of Staff Meet. of Mayo Clinic, Rochester, Minn.

23:57-80 (Feb. 4) 1948

Some Modern Concepts in Treatment of Brain Abscess: Report of 3 Cases. C. S. MacCarty and J. G. Griffin. -p. 57.
*Malignant Lesions of Uterus Associated with Estrogen-Producing Ovarian Tumors: Report of 2 Cases. Elizabeth Mussey, M. B. Docherty and J. C. Masson. -p. 63.
Method of Obtaining Bilateral Bronchograms. H. W. Schmidt. -p. 71.

Malignant Lesions of Uterus Associated with Ovarian Tumors.—Mussey and associates point out that the association of malignant lesions of the uterus with estrogen-producing neoplasms of the ovary has been noted by several writers and suggests the possible importance of the estrogens as carcinogenic agents in the human female. They present the histories of 2 patients recently observed at the Mayo Clinic in whom functioning ovarian tumors concurred with malignant growths in the uterus. This report brings to 15 the number of malignant lesions of the uterus which have been found in conjunction with the 87 estrogen-producing ovarian neoplasms observed at the clinic. Data on 62 granulosa cell tumors and 23 theca cell tumors have previously been reported. The incidence of malignant lesions of the uterus in the combined series is 17.2 per cent. These figures are in close agreement with Hertig's estimate that 18 to 20 per cent of granulosa cell tumors are accompanied by carcinoma of the uterus. The experimental evidence to support the contention that carcinoma of the uterus may be produced by estrogens is suggestive but not conclusive. In the human being several clinical and pathologic observations sustain the belief that endometrial malignant lesions fail to develop without accompanying hyperestrinism. Etiologic factors other than the estrogens have been considered by those who have studied carcinoma of the body of the uterus; these include fibromyomas and radiation.

Surgery, St. Louis

23:161-320 (Feb.) 1948

Operative Treatment of Chronic Gastric and Duodenal Ulcer. C. Bruusgaard. -p. 161.
*Production of Allergic Gastric and Duodenal Edema Which Predisposes to Histamine-Provoked Ulcer in Dogs. S. H. Friesen, D. State, D. E. Jasper and others. -p. 167.
Aseptic Gastric Resection, Billroth I Technic. A. Monteiro and H. Barreto. -p. 178.
*Primary Nonspecific Ulcers of Small Intestine. J. A. Evert, B. M. Black and M. B. Docherty. -p. 195.
Carcinoma of Gall Bladder: Report of 75 Cases. F. P. Sainburg and J. H. Garlock. -p. 201.
Hemorrhagic Infarction of Greater Omentum Simulating Acute Appendicitis: Report of 2 Cases. F. I. Harris, T. Diller and S. A. Marcus. -p. 206.
*Comparative Study of Action of Demerol and Opium Alkaloids in Relation to Biliary Spasm. E. A. Geensler, J. H. McGowan and F. F. Henderson. -p. 211.
Surgical Management of Acquired Stricture of Esophagus with Esophagobronchial Fistula and Bronchiectasis of Entire Right Lung: Report of Case. O. T. Clagett and H. W. Schmidt. -p. 221.
Restoration of Thumb: By Transplantation, Plastic Repair and Prosthesis. A. J. Barsky. -p. 227.
Typhoid Osteomyelitis of Tibia Treated with Streptomycin and Surgical Excision: Case Report. H. P. Royster, C. K. Kirby and R. G. Wilbur. -p. 240.
Experimental Observations in Treatment of Craniosynostosis. F. D. Ingraham, D. D. Matson and E. Alexander Jr. -p. 252.
Cyst Formation at Operative Site Following Cerebellar Operations (Pseudomeningocele). W. T. Peyton and D. R. Simmons. -p. 269.
Foreign Body Localization in Soft Parts: Simple Method Requiring No Especial Training or Equipment. C. E. Gardner Jr. -p. 275.
Subcutaneous Emphysema Following Chest Trauma: Analysis of Twenty Cases. W. Steinfeld. -p. 278.
Carcinosarcoma of Mammary Gland. B. Halpert and M. O. Young. -p. 289.
New Material and Tube Design in Gastrointestinal Intubation. A. L. Koslov. -p. 293.
Electric Lift: An Aid in Treatment of Decubitus Ulcers. J. G. Kostrubala and A. G. Wagner. -p. 298.

Allergic Gastric and Duodenal Edema.—Friesen and his co-workers sensitized dogs locally by immune horse serum of high antibody titer, either by direct mucosal and submucosal infiltration or intra-arterial injection. (The horse from which the serum was obtained had been sensitized previously to five different antigens.) After one to ten days one of the antigens to which the dog thus had been sensitized was injected systemically via a vein of the tongue and measurements of the viscus wall thickness and biopsies were obtained before and after injection of the antigen up to ten hours. All dogs thus sensitized manifested gross and microscopic edema following systematic intravenous injection of antigens. In dogs in which sensitization of the duodenum was accomplished by injecting immune horse serum within the duodenal lumen mucosal edema also developed after systemic injection of antigen. All five antigens were observed to be effective in initiating the response. One series of dogs was subjected to the same procedures with normal horse serum having a negative antibody titer to the antigens employed instead of the prepared horse serum with high antibody titer; these dogs

had no edematous reaction after intravenous administration of antigens. To evaluate the role of allergic edema on the provocation of ulcer, a number of dogs were sensitized in the manner described. Forty-eight hours after sensitization, daily intravenous injection of the antigen into the systemic circulation of the dogs was begun; a different one of the five antigens to which the horse had been sensitized was injected daily until all five foreign proteins had been administered (a total of five days). In one series a mixture of histamine in beeswax was injected intramuscularly each evening. Another series of dogs was subjected to the same procedures with normal horse serum having a negative antibody titer to the antigens employed instead of the prepared horse serum with high antibody titer. All the dogs subjected to the production of local anaphylaxis with concomitant administration of the mixture of histamine in beeswax demonstrated edema with ulcer and/or erosion at the site of sensitization at the time they died or were killed (five days or less). Three of the six dogs subjected to the production of local anaphylaxis without administration of histamine in beeswax demonstrated definite ulcers at the site of edema after five days of antigen administration; all 6 showed edema at the site of sensitization. Of the dogs subjected to local injection of normal horse serum of negative antibody titer followed by daily systemic injection of antigen accompanied by the administration of histamine in beeswax, none showed edema, erosion or ulcer. Experimental gastrointestinal edema resulting from local antigen-antibody reaction favors the development of the histamine-provoked ulcer in dogs and abets the ulcer diathesis.

Nonspecific Ulcers of Small Intestine.—Evert, Black and Docherty review 130 cases of primary jejunal and ileal ulcers in 97 men and 33 women. The average age of all patients was 43 years. Nonspecific localized ulcerations of the jejunum and ileum are so similar pathologically as to justify their classification as a group under the name primary, or simple, ulcers. Although the lesions are characteristically solitary, small groups of ulcers are sometimes observed. The causation of primary ulcers is unknown. There is little direct evidence to support theories that they are caused by infection, irritation from gastric secretions, trauma or vascular abnormalities. The symptoms of primary ulcer are for the most part secondary to the complications of perforation, bleeding or obstruction. The possibility of these lesions should be considered in the presence of unexplained intestinal bleeding or of peritonitis which suggests acute visceral perforation when such perforation cannot be found in the stomach or duodenum. The mortality rate is high; there were 56 fatalities among the 85 cases recorded before 1931, and 21 deaths among the 45 recently occurring cases. The lesion has been recognized during life only after some complication has led to surgical intervention.

"Demerol" and Opium Alkaloids in Biliary Spasm.—Gamaler and his co-workers made pressure studies which included determination of resting intrabiliary pressure, perfusion pain level and pressure changes resulting from the action of meperidine hydrocloride "demerol hydrochloride" N.N.R and opium alkaloids, in 10 postoperative patients with T tube biliary drainage. Results in 10 unselected patients with T tube drainage of the common duct showed that, contrary to common belief, meperidine is to be considered as a spasmogenic rather than a spasmolytic agent on the sphincter mechanism at the lower end of the common bile duct (Oddi). The spasm produced was intermediate in intensity between that produced by codeine and that by morphine; it was sufficiently severe in 2 instances to initiate a typical attack of biliary colic. The drug was observed to increase rather than relieve natural duodenal spasm as well as spasm produced by codeine. The effect produced by meperidine was regularly but briefly relieved by amyl nitrite or aminophylline. Meperidine should be used with as much caution as the opiates in postcholecystectomy pain. If biliary colic is due to spasm, glyceryl trinitrate 1/250 grain (0.25 mg.) in doses of one to two granules under the tongue will relieve the attack. If the pain is due to biliary obstruction other than spasm relief will not be afforded by the nitrites and morphine or meperidine.

Surgery, Gynecology and Obstetrics, Chicago

86:129-256 (Feb.) 1948

Use of Isotopes in Surgical Research. F.D. Moore.—p. 129.
Rectogenital Septum. E. Uhlenhuth, W.W. Wolfe, E.M. Smith and E.B. Middleton.—p. 148.
Effect of Surgical Interruption of Gastric Blood Flow upon Gastric Secretion and Prevention of Experimental Peptic Ulcers. H.H. Le Vene.—p. 164.
Repair of Hernia with Special Application of Principles Evolved by Bassini, McArthur and McVay. C.O. Rice and J.H. Strichler.—p. 169.
Redundant Blind Segments of Intestine Following Side to Side Anastomosis with Division of Bowel: Report of 5 Cases. B.M. Black and C.G. McEachern.—p. 177.
Calcification of Supraspinatus Tendon: Infiltration Therapy with Local Anesthesia and Multiple Needling. I. Marwick.—p. 183.
Indication for Posterior Transpleural Bronchotomy in Management of Intrabronchial Tumors. H.T. Langston and R.T. Fox.—p. 192.
Laryngectomy. L.H. Clerf.—p. 197.
Effect of Absorbable Sponge Materials on Activity of Thrombin. J.H. Olvin and F.J. Wahl.—p. 203.
Omentopexy Transplant: Analysis of Methods Employed and Results Obtained in 75 Cases. J.W. Kirklin and C.G. Thomas Jr.—p. 213.
*Treatment of Persistent Colon Bacillus Infections of Urinary Tract by Sulfasuxidine and Streptomycin. E. Crowley and V.J. O'Conor.—p. 224.
Radical Treatment of Brain Abscess. J. Chorobski and A. Kunicki.—p. 230.

"Sulfasuxidine" and Streptomycin in Urinary Infections.—Crowley and O'Conor say that the apparently complete cure of a highly refractory urinary infection following treatment with sulfasuxidine (succinylsulfathiazole) plus streptomycin prompted them to use this combination in 23 patients, who had been under observation for from three months to twenty years without an effective or lasting eradication of the colon bacillus from the urine. The results have been so uniformly successful, and so much more noteworthy than when streptomycin alone was employed, that the authors believe this combination to offer the possibility of an effective method of cure in a greater percentage of these resistant cases than has been obtained by other methods of medication heretofore employed. Of 23 treated patients, 19 have maintained a completely favorable response for periods sufficiently prolonged to suggest a permanent cure. These patients received succinylsulfathiazole for varying periods before, during and after the administration of 5 to 17 Gm. of streptomycin. Either agent given alone had not had the favorable effect observed in the combined therapy. Success in the 19 patients with longstanding resistant infection seemed dependent on the patient's ability to continue the ingestion of succinylsulfathiazole. Fortunately the toxicity of the drug is low, and it can be given in large doses for long periods of time. Toxic symptoms, if they occur, subside rapidly when administration of the drug is discontinued.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

70: 361-512 (Dec.) 1947. Partial Index

Effects of Bladder Distension on Autonomic Mechanisms After Spinal Cord Injuries. L. Guttmann and D. Whitteridge.—p. 361.
Dysprosody or Altered "Melody of Language." G. H. Monrad-Krohn.—p. 405.
*Early Traumatic Epilepsy. C. W. H. Whitty.—p. 416.
Hallucinations of Remembered Scenes as Epileptic Aura. P. K. Robinson and A. C. Watt.—p. 440.
Facial Apraxia and Apraxic Dysarthria. P. W. Nathan.—p. 449.
Mother-Child Incompatibility Problem in Relation to Nervous Sequelae of Hemolytic Disease of Newborn. D. F. Cappell.—p. 486.

Early Traumatic Epilepsy.—The material studied by Whitty falls into two groups: First, 29 cases of early epilepsy occurring among 434 consecutive gunshot wounds of the brain observed twelve to forty-eight hours after wounding; second, 23 cases found among the records of some 400 patients with brain wounds evacuated to a base hospital within a few days of wounding. Early epilepsy of a motor type only was recorded. The phrase "early attacks" is used here in a physiologic rather than a purely temporal sense. Attacks that occurred while the clinical condition of the patient and the state of the wound suggested that brain edema, local vascular change or actual brain debris were still present, were considered as early. Such a definition seems comparable to the usually accepted "first few days." The author made an attempt to evaluate the importance of traumatic factors such as site and severity of wound and constitutional factors such as family and personal history of epileptic phenomena in these early attacks. It is concluded that site plays little part in their incidence, though it may influence the type of attack which occurs. Extent of surface damage may be important, and constitutional factors are significant. The follow-up in these cases shows that they involve a greater likelihood of later epilepsy than similar wounds without early attacks. Late attacks occur both with and without involuntary movements.

British Journal of Dermatology and Syphilis, London

60: 41-80 (Feb.) 1948. Partial Index

Vitamin A in Darier's Disease. Z. A. Loitner and T. Moore.—p. 41.
Nodular Epithelioma. J. Pierard and A. Dupont.—p. 50.
*Pruritus Vulvae from Rubber, Due to Allergic Sensitivity to Alkali. G. H. V. Clarke.—p. 57.

Pruritus Vulvae from Rubber.—Clarke reports the case of a woman aged 27, in whom pruritus vulvae followed the use of rubber condoms. The irritant was traced to the presence of free alkali from potassium oleate used in the manufacture of the sheaths as a stabilizer. Soaking of the sheaths in a 0.5 per cent solution of sulfuric acid for twelve hours proved satisfactory. It is remarkable that the action of alkali on this woman's skin appears to be that of allergic sensitization rather than simple chemical damage.

British Journal of Industrial Medicine, London

5: 1-50 (Jan.) 1948.

Studies in Incidence of Cancer in Factory Handling Inorganic Compounds of Arsenic. A.B. Hill, E.L. Faning, K. Perry and others. -p. 1.
Some Physiologic Observations on West African Coal Miners. W.S.S. Ladell. -p. 10.
Uremia in Methyl Bromide Poisoning: Case Report. A.J. Benatt and T.R.B. Courtney. -p. 21.
Toxic Effects of Nitrosoethyl Urethane. F. Wrigley. -p. 26.

British Journal of Radiology, London

21: 55-104 (Feb.) 1948

Hiatus Hernia. S. C. Shanks.—p. 55.
Case of Localized Traumatic Bone Absorption in Skull. F. G. Nicholas, H. C. Furst and R. Topper.—p. 67.
Anomalous Middle Lobe of Left Lung. G. L. Hardman.—p. 70.
Theories of Biologic Actions of Ionizing Radiations. C. B. Allsopp.—p. 72.
Note on X-Ray Absorption Coefficients of Air at Wavelengths Less Than 1.0 Angstrom. J. R. Greening.—p. 75.
Construction of an Exposure Calculator for Radiography. G. D. Steven.—p. 78.
Clerical Method for Use in X-Ray Diagnostic Departments. A. A. Vichers.—p. 90.

British Medical Journal, London

1: 185-238 (Jan. 31) 1948

Our Founders and Benefactors. C.E. Lakin. -p. 185.
Localization of Deep Pain. J.B. Harmon. -p. 188.
Pre-Erythrocytic Stage of Mammalian Malaria. H.E. Shortt, P.C.C. Garnham and B. Malamos. -p. 192.
Role of Trichlorethylene in General Anesthesia. G. Outlere. -p. 195.
*Homologous Serum Jaundice. K.B. Scott and G.H. Tovey. -p. 196.
*Homologous Serum Jaundice in Infancy. J. Apley and H.R.E. Wallis. -p. 197.

1: 239-284 (Feb. 7) 1948

Effects of War on Child Health. H.W.B. Ellis. -p. 239.
Observations on Rationing in Tuberculosis. R.Y. Keers. -p. 245.
Generalized Infection with Virus of Herpes Simplex. R.H. Kipping and A.W. Downie. -p. 247.
Effect of Thiocyanate on Basal Blood Pressure. K.S. Alsted. -p. 250.
Treatment of Angina Pectoris by Reduction of Basal Metabolism. G. Schoenewald. -p. 251.
Chronic Hepatitis Treated with Methionine and Choline. D.G. Cameron and W.L. Newhouse. -p. 253.

Homologous Serum Jaundice.--Scott and Tovey relate the clinical history of a primipara, aged 19, who was jaundiced when she was hospitalized for an abscess in the breast. The jaundice had begun fourteen days previously. Because of a postpartum hemorrhage the patient had received a transfusion of two bottles of plasma and one bottle of group O Rh-negative blood seventy-nine days before the onset of the jaundice. The relatively high incidence of hepatitis following plasma transfusions (5 to 10 per cent) make it seem probable, therefore, that this was a case of homologous serum jaundice. Fortunately this patient made a complete recovery.

Homologous Serum Jaundice in Infancy.--Apley and Wallis describe 2 fatal cases of homologous serum jaundice in infants. In 1 child jaundice developed sixty-three days after the infusion of plasma; the infant died at the age of 5 months after a short illness characterized by vomiting and convulsions. The other child was 1 year of age when jaundice developed one hundred and twenty-two days after infusion; he died after four days' illness, having been comatose for two days. No other cases of jaundice could be traced in 17 babies who had also been treated with intravenous plasma, or in 5 babies treated with intravenous saline solution or whole blood.

1: 285-332 (Feb. 14) 1948

*Aftermath of Gastrectomy. N. C. Lake. -p. 285.
Curare in Oil in Treatment of Spastic Conditions. C. A. Clarke and R. D. Hotston. -p. 289.
Louse-Borne Relapsing Fever in Persia. R. I. Bodman and I. S. Stewart. -p. 291.
What the Medical Practitioner Wants to Know. R. T. Bevan. -p. 294.
*Brodie's Abscess of Tibia: Its Treatment by Surgery, Penicillin and Sulfadiazine. S. Scott and F. S. Preston. -p. 296.

Aftermath of Gastrectomy.—Surveying the treatments that have been employed against peptic ulceration during the present century, Lake believes

that at present gastrectomy gives better and more permanent results than most other surgical or medical treatments. He reviews observations on 515 patients whom he treated in the course of twenty-three years. A type of end to side anastomosis with a restricted and valvular orifice has been found to give good results in the vast majority of cases. The risk of the operation is being steadily reduced, chiefly as a result of greater preoperative and postoperative care. Sulfonamide therapy, used as a routine, has proved valuable in the prevention of infective pulmonary complications. Omental necrosis and early morning nausea are noted as results not previously described. The incidence of anastomotic ulceration after this operation appears to be a little under 1 per cent. Discussing the syndrome of postoperative hypoglycemia associated with a "dumping" stomach, the author cites a report by Gilbert and Dunlop, who observed it in no fewer than 17 among 45 gastrectomies. In his own material the incidence was much lower, only 29 in 515 cases. He feels that this problem is not yet completely understood and in searching for the cause he considers four possibilities: (1) dumping of the stomach contents into the jejunum with reflex effects, via the splanchnic innervation, from overdistention; (2) hypoglycemia; (3) vagus stimulation and neurosis. Other postoperative complications discussed are morning nausea, adhesions, ventral hernia, gallstones and colospasm.

Brodie's Abscess of Tibia.—Scott and Preston report the case of a man aged 52, who complained of intense, continuous, deep-seated pain situated in the lower end of the tibia. There was a history of a compound fracture of the lower third of the left tibia and fibula some thirteen years previously. This fracture had united, but there was considerable thickening of both the tibia and fibula at the junction of the middle and lower thirds. Gross swelling of the left ankle was seen, particularly over both malleoli, where two large abscesses were pointing and appeared to be about to rupture. Lymphangitis was pronounced up to the level of the knee. Radiographic examination revealed an egg-shaped cavity of the lower third of the tibia, about 2½ inches (6.35 cm.) long vertically, by about 1 inch (2.5 cm.) in breadth and in depth. There was a small beadlike pocket connecting with the lower aspect of the cavity. The whole was surrounded by dense sclerotic bone. A diagnosis of Brodie's abscess was made. The superficial abscesses were aspirated, and sodium penicillin was injected into each abscess. Repeated aspiration of the superficial abscesses, introduction of penicillin and systemic treatment with sulfadiazine and penicillin resulted in cure of the superficial abscesses. The bone was saucerized over the abscess and the bone chips were preserved in warm isotonic solution of sodium chloride. After exposure of the lining membrane of the abscess all further bone chips were discarded. The abscess was fully laid open along its whole length, and the gray pus which formed its contents was removed and retained for examination. The lining membrane was carefully curetted with a Volkmann's spoon and all debris removed. The cavity was then packed with the previously preserved bone chips. An ordinary wide bore intravenous needle was introduced into the cavity. The dressing was arranged so that the base of the needle would protrude through the dressing without interference with the wound itself, thereby enabling injections of penicillin to be carried out at three hour intervals. Bacteriologic examination of the pus from the bone abscess revealed numerous gram-positive cocci, which on culture gave profuse colonies of Staphylococcus aureus pyogenes. This operation resulted in obliteration of the bone cavity with healing of the wound by first intention and retention of the shape and symmetry of the limb.

Journal of Mental Sciences, London

93:709-834 (Oct.) 1947. Partial Index

Excitatory Abreaction with Special Reference to Its Mechanism and Use of Ether. H. J. Shorvon and W. Sargant. -p. 709.

Emisteace of Critical Levels for Actions of Hormones and Enzymes, with Some Therapeutic Applications. W. R. Ashby. -p. 733.

*Cerebral Symptoms in Throabo-Angiitis Obliterans. D. Perk. -p. 748.

Hyperine Psychosis. D. Perk. -p. 756.

Schizophrenia in Boy of 11 Years. G. Gerome. -p. 772.

Treatment of Epileptics with Epomtin. R. G. R. Barrows. -p. 778.

Cerebral Symptoms of Thromboangiitis Obliterans.—A man aged 29 came to Perk's attention when the man's clinical documents were under scrutiny for consideration of his claim to a pension. The fact that in the sixteen and a half months during which this man was under observation his disease was variously diagnosed as schizophrenia, mania, manic-depressive psychosis and epileptic psychosis, all as primary conditions, even though the condition of his feet was correctly diagnosed as due to thromboangiitis obliterans, indicates that the occurrence of cerebral manifestations of thromboangiitis obliterans is seldom considered. It is possible, of course, that the mental condition was not connected with the vascular one. Other authors have warned against too readily assuming a connection between the two, but the occurrence of other cerebral manifestations such as fits, diplopia and dysarthria, the earlier paroxysmal symptoms typical of thromboangiitis obliterans affecting the cerebral vessels, points to the probability that mental symptoms were likewise due to the vascular condition. The literature provides evidence that neurologic symptoms may be produced by thromboangiitis obliterans of the cerebral vessels. There may be muscular spasms ranging from tics to epileptiform convulsions; palsies ranging from weakness to complete paralysis, either localized to a group of muscles, commonly in the face or in an extremity, or affecting half the body (hemiplegia); sensory disturbances such as hemianopia and numbness; speech disturbances, and impairment of higher cerebral functions. In addition, mental symptoms may range from transient confusion or excitement to full fledged psychoses. Neurologic and mental symptoms may precede, though more commonly they follow, manifestations of the disease in the extremities and other parts of the body. The author discusses several views on the pathogenesis of this condition.

Journal of Royal Army Medical Corps, London

89:255-310 (Dec.) 1947

Unusual Aspects and Therapy in Amebic Dysentery. L. R. S. MacFarlane. -p. 255.

Positive Health--Its Attainment in Soldier and Army's Contribution to It in Civilian. A. E. Richmond. -p. 274.

*Infective Hepatitis. J. Mackay-Dick. -p. 290.

Infective Hepatitis.—Mackay-Dick discusses an outbreak of fulminating hepatic necrosis affecting essentially soldiers of the Polish forces of the British Army of the Rhine. At least 32 of the total of 38 patients who died are known to have had syphilis and antisyphilitic therapy. The likelihood of syringe transmission of the disease is suggested. The author stresses that of 154 patients with infective hepatitis dealt with in one British Military Hospital 89 had venereal disease and a total of 117 had had injections of some sort during the preceding six months. In the fatal cases in which the brain was examined cerebral edema was

evident. Adequate sterilization of all needles and syringes used in protective inoculations and in the transmission of all fluids into the human body is of vital importance.

Journal of Tropical Medicine and Hygiene, London

51:1-22 (Jan.) 1948

*Quinine and Congenital Injuries of Ear and Eye of Fetus. C. W.F. Winckel. -p. 2.
Serial Cephalin Flocculation Curves: Their Application in Study of Tropical Diseases and Their Relation to New Resistance Factor. J.G. Mukerji. -p. 8.

51:23-44 (Feb.) 1948

Response of Intestinal Amebiasis to Diodoquin Treatment. P. Manson-Bahr and W.J. Muggleton. -p. 23.
Induced Malaria for Treatment of General Paralysis. J. Dylmer and C.W.F. Winckel. -p. 27.
Land Ownership and Anti-Malaria Law in Malaya. J.H. Hudson. -p. 33.

Quinine and Congenital Ear and Eye Defects.--Winckel says that some authors have ascribed congenital defects of the eye and ear in children to the fact that the mothers took quinine during pregnancy. It is by no means sure that quinine was the cause of these defects. The literature reports only 17 cases of this type, and these congenital defects appear to be no more numerous and serious whether the use of quinine has been excessive or moderate. Deafmuteness is no more frequent in endemic malarial states with a large consumption of quinine than in states without malaria where the amount of quinine used may be negligible. The 17 cases mentioned in this paper were published before there was any suspicion concerning the deleterious influence of rubella in the mother on the fetus.

Lancet, London

1:165-200 (Jan. 31) 1948

What is Gout? F.W. Jones. -p. 165.
Plantar Warts: Plea for Rational Treatment. C.R. McLaughlin. -p. 168.
Liver Disease in Johannesburg: Relation to Pellagra. J. Gillman and T. Gillman. -p. 169.
Artificial Pneumothorax: Survey of 150 Inductions on Outpatients. A. Maclean and J.S. Gemmill. -p. 173.
Seasonal Incidence of Retarded Growth in Children with Nutritive Failure. S. Dreizen, A.W. Maun and T.D. Spies. -p. 175.
Failure of Sulfonamides and Penicillin in Maduromycosis. A. Dostrovsky and F. Sagher. -p. 177.

Rational Treatment of Plantar Warts.--McLaughlin calls attention to the dangers involved in treating plantar warts with roentgen rays or radium and describes a combination of curettage and diathermy, which he has found effective. He pares down the overlying horny skin until the typical bundles of the wart are clearly defined. A Volkmann spoon, the exact size of the wart, is then driven into the foot at the edge of the wart, and swept round so that the core is shelled out complete. The hyperkeratinized collar at the neck of the cavity is trimmed with scissors, and the hole converted into a "saucer." The base, which is tough, must then be scraped until smooth and repeatedly touched with a diathermy needle or an electric cautery, using a fine point with a light touch. A small wick of ribbon gauze is inserted into the cavity and the area covered with gauze and elastoplast. The patient can usually walk with care immediately; and, after the plug has been removed in forty-eight hours, there should be little discomfort. Healing is usually complete in seven to ten days. A case is presented which illustrates both the detrimental effects of roentgen treatment and the wide scope of the described procedure.

Lancet, London

1:201-236 (Feb. 7) 1948

Country Doctor. V. N. Pickles. -p. 201.
Bronchial Carcinoma Presenting as Polyneuritis. R. Wyburn-Mason. -p. 203.
Treatment of Schistosomiasis. H. Girgis and S. Aziz. -p. 206.
*Clicking Pneumothorax. W. Fox. -p. 210.
Phosphatase and Bone Formation. A. Sleasor and G. H. Bybura. -p. 212.
Acute Subdural Hematoma Amenable to Surgical Treatment. N. Whalley. -p. 213.
Fatal Hypoglycemia in Diabetic. J. L. Wishler. -p. 215.

Clicking Pneumothorax.—Fox is concerned with the striking and dramatic physical sign termed by some observers pericardial knock, which consists of a clicking noise synchronous with the heart beat and often audible at some distance from the patient. The author cites earlier reports of cases of this type and describes 2 new cases. It has been observed in spontaneous as well as in artificial pneumothorax. The possible mechanisms of production are critically analyzed. It is suggested that the click is produced in a free pneumothorax space by the impact of the lingula against the anterior chest wall, its movement being initiated by the cardiac impulse. The production of the click in this manner has been confirmed in the cadaver.

Medical Journal of Australia, Sydney

1:1-28 (Jan. 3) 1948

Treatment of Psychoses and Psychoneuroses by Electroplexy (Electric Shock Therapy) in General Hospital. J. Beattock and B. J. Phillips. -p. 1.
Some Aspects of Female Infertility. Lorna Lloyd-Green. -p. 7.
Abortive Syphilitic Aortitis. C. Engel. -p. 12.
*Blood Transfusion with Unsuspected Rh Sensitivity. D. L. Davis. -p. 13.

Blood Transfusion and Rh Sensitivity.—Davies states that a man aged 31 was given 4 pints (1.9 liters) of blood over a twenty-four hour period, because he had an extremely low hemoglobin content following vomiting of blood and having black stools. After the transfusion the patient became jaundiced. Examination of his blood revealed gross hemolysis. Further questioning revealed that he had received 20 cc. of malarial blood by intramuscular injection at a malaria experimental station in January 1944. The patient's blood was found to belong to group O (IV) and to be Rh-negative. The patient was apparently made sensitive to Rh-positive blood by the intramuscular injection of 20 cc. of blood in January 1944, there being no history of previous blood therapy. Although the patient's serum and the donors' cells were compatible at room temperature for twenty minutes, the transfusion subjected him to a grave risk. For absolute safety, either of the following precautions should be taken if there is a history of previous blood transfusion or intramuscular injection of blood: (1) the blood should be tested for the Rh factor, and if it is Rh-negative, the patient should be given Rh-negative blood; (2) the cells of the donor's blood and the patient's serum should be incubated at 37° C. for twenty minutes before being pronounced compatible.

Acta Dermato-Venereologica, Stockholm

27:339-466 (No. 5) 1947. Partial Index

Herpes Menstrualis. N. A. Andersen. -p. 339.
Two Cases of Angiokeratoma Corporis Circumscriptum. K. Bang. -p. 344.
Studies on Pathogenesis of Morphea, Vitiligo and Arteriosclerotic Atrophicans by Means of Transplantation Experiments. N. Hasthensen. -p. 352.
Red Fluorescent Coating of Normal Tongue and Its Connection with Vitamin B Metabolism. G. Hagerman and H. Hirschfeld. -p. 349.

*Investigations on Etiology of Reiter's Disease or the Conjunctival-Urethral-Synovial Syndrome. E. Pastinszky. -p. 415.

Reiter's Disease.—Pastinszky reviews the earlier literature on the syndrome characterized by arthritis, urethritis and conjunctivitis, which was first described by Reiter in 1916. He reports 7 cases of this syndrome seen in a group of soldiers during World War II. The syndrome was preceded three or four weeks by diarrhea. Bacteriologic examination of the feces was impossible, but in 2 cases serologic tests revealed agglutinations of 1:200 to 1:400 with strains of Bacterium flexneri. The conjunctival and urethral secretions did not yield dysentery bacilli, spirochetes or virus. The Frei test for the virus of lymphogranuloma inguinale was negative. The syndrome must be considered as a specific allergic or para-allergic reaction after an intestinal bacillary infection, in which the reacting organs are the urethra, the bladder, the conjunctiva and the joints with eventual involvement of other organs. The allergic pathogenesis is partially confirmed by tests on the mucous membranes or by other allergic phenomena such as urticaria, leukopenia, local eosinophilia (conjunctival and urethral secretions) and general eosinophilia in the blood. The disease may be accompanied by severe generalized syndromes, such as remittent fever, or a subfebrile state. The blood formula shows deviation to the left and in certain cases eosinophilia. The arthropathies are refractory to treatment with sodium salicylate or phenylquinoline. Various antiallergic measures such as fever therapy, autohemotherapy, calcium and ephedrine and dextrose have been effective.

Acta Medica Scandinavica, Stockholm

129:415-508 (Jan 27) 1948

*Types of Diphtheria Bacillus and Clinical Diphtheria: Observations During Diphtheria Epidemic in Copenhagen in Winter of 1943-1944. E. Amundsen, J. Bang, G. Franck, A. Hansen and others. —p. 415.

Acute Polyradiculoneuritis Arising After Peritonsillar Abscess and Accompanied by Increased Antistreptolysin Titer in Cerebrospinal Fluid. F. Iversen. —p. 441.

Electrocardiogram in Mitral Stenosis with Special Regard to Its Development: Study of 100 Cases. H. Rasmussen and G. Nybus. —p. 446.

Three Cases of Polycythemia with Fibrinopenia. S.E. Bjorkman. —p. 472.

Price-Jones Curve in Initial Pernicious Anemia. G. Totterman. —p. 478.

Etiology of Edema During Anemia. M. Foldi, A. Korenyi and G. Szabo. —p. 486.

Penicillin Therapy in Diphtheria. S.J. Vaszolski and L.J. Headsel. —p. 493.

Types of Diphtheria Bacillus and Clinical Aspects.—Amundsen and his associates report that during the winter of 1943-1944 a total of 403 patients with diphtheria were treated at the Blegdam Hospital in Copenhagen. The fact that 70 per cent of the patients were adults is regarded as due to the fact that 90 per cent of the school children have been inoculated against diphtheria since 1941. Of 299 cases in which the diphtheria bacilli were typed, the organism proved to be of the mitis type in 133 and of the gravis type in 141. Of those with a mitis infection 6 per cent died and of those with a gravis infection 14 per cent died. The incidence of severe cases was 15 per cent in the mitis group, 27 per cent in the gravis group. Of 112 patients with mild diphtheria none died. There was one death among 164 patients with moderately severe diphtheria, but no less than 20 deaths in the group of 64 severe cases. Thus, severe diphtheria in spite of early and large doses of antitoxin is still a rapidly progressive disease, with a death rate of 30 per cent. Nearly three fourths of the patients in whom diphtheria developed had not been vaccinated; 62 had had one or two injections, and only 44 had been adequately inoculated with three injections. Whereas 22 per cent of the unvaccinated patients belonged to the group with severe diphtheria, the incidence fell to 5 per cent among those partially vaccinated; only 2 fully vaccinated patients had severe diphtheria. Not a single patient who had been adequately vaccinated died from diphtheria.

Helvetica Medica Acta, Basel

15:1-104 (Jan.) 1948. Partial Index

*Effect of Methylthiouracil on Histologic Picture of Thyroid Gland in Hyperthyreosis. C. Vegelin. -p. 3.

*Treatment by Intra-Arterial Injections. A. Kappert. -p. 25.

Tuberculous Morbidity in a Training-School for Nurses and Primary Results of Systematic Vaccination with B. C. G. by Scarification of Skin. A. Delachaux. -p. 62.

*Hemopoesis; Phagocytosis of Erythrocytes in Peripheral Blood. H. Baumgartner. -p. 64.

Methylthiouracil in Hyperthyreosis.—Vegelin treated 31 patients with hyperthyreosis with methylthiouracil ("thiomidil") prior to doing partial thyroidectomy. Twenty-nine of the patients were women between the ages of 22 and 66 and 2 were men aged 48 and 37, respectively. The clinical picture varied from severe diffuse toxic goiter to mild hyperthyreosis. The daily dose of the drug varied from 0.0375 to 0.375 Gm. In the majority of the cases treatment was continued for two to three weeks but in some cases for longer periods up to six months. The smallest total dose was 1 Gm. in five days; the largest, 27.5 Gm. in ten weeks. Microscopically, the removed thyroid tissue was not uniform. A more pronounced epithelial proliferation did not correspond with the administration of larger doses of the drug. The thyroid tissue of the patient who received the largest total dose of the drug showed the greatest abundance of colloid. Epithelial proliferation was not evident in all cases, and a considerable number of cases were conspicuous for their high colloidal content. These differences cannot be explained by the additional administration of iodine, which was given in only 6 cases, or by the dosage and duration of treatment with methylthiouracil. The chemical examination of some of the removed thyroids suggested that methylthiouracil may reduce the synthesis of thyroxin. Loosening of epithelium, nuclear pyknosis and colloidal atrophy of the thyroid was demonstrated on microscopic examination of the thyroid tissue of rats which were given methylthiouracil; regeneration was suggested by the frequent occurrence of mitosis.

Intra-Arterial Injections.—According to Kappert, treatment by intra-arterial injections is principally indicated for disturbances of the peripheral blood circulation to control arterial spasms. Drugs best suited for this purpose are those which act on the autonomic nervous system, i.e., on the vegetative innervation of the blood vessels. In addition to such drugs as procaine hydrochloride, 2-benzyl-2-imidazoline ("priscol"), acetylcholine and "embran" (muscle extract), intra-arterial injections of calcium (calcium gluconate in a 10 to 20 per cent solution) have been used for circulatory disorders at the medical policlinic in Bern. In a man aged 65 with arterial embolism, paresthesia in the left arm subsided and pulsation at the bend of the elbow and in the radial artery was restored after eight injections of 10 cc. of 10 per cent solution of calcium into the brachial artery. In a woman aged 23 with lymphedema of the leg, the swelling subsided after the intra-arterial injection of 10 cc. of a 10 per cent solution of calcium three times a

week for two weeks. Combined intra-arterial injections of 50,000 units of penicillin with 10 cc. of a 10 per cent solution of calcium gluconate in addition to one intramuscular injection of 150,000 units of penicillin daily (one series of ten injections) are recommended for lymphedema of inflammatory origin, for acute attacks of inflammation of connective tissue and for lymphangitis. Intra-arterial injections of penicillin combined with a vasodilator ("priscol") proved effective in cases of necrosis and gangrene associated with functional and organic disorders of peripheral vessels. Cramps in the calf on walking and feeling of heaviness in the left leg in a man aged 66 subsided after seven injections into the femoral artery of nicotinamide combined with nicotinic acid. In cases of vascular spasm, therapeutic trials with intra-arterial injections of 0.5 to 1 mg. of dihydroergotamine showed that this drug is a vasodilator causing dulness of the sympathetic tonus.

Hemopsonins.--According to Baumgartner, leukocytes that ingest erythrocytes present a rare species of cells of the peripheral blood. Hematologic reports in the literature show that these phagocytic cells may be observed in relationship with certain hemolytic syndromes but also in the course of bacterial diseases, particularly in sepsis lenta and in certain intoxications. The phagocytosis of the erythrocytes in the peripheral blood as well as in the reticuloendothelial system results from a preceding "opsonization" of the red blood cells. Experiments demonstrated that an opsonic effect may be produced by the rhesus antibodies in addition to that produced by the antibodies which are specific for the blood groups. Consequently, phagocytosis of the erythrocytes may be interpreted as a symptom of the two morbid conditions which are related to the isoantibodies, i.e., the accidents occurring after the transfusion of blood from donors whose blood groups and Rh factors are different from those of the recipients, and fetal erythroblastosis. The autoantibodies which are responsible for certain hemolytic diseases behave like the isoantibodies. They are able to act not only as agglutinins and hemolysins but occasionally as opsonins. This has been confirmed by clinical observations of phagocytosis of erythrocytes in acute hemolytic anemia and in paroxysmal hemoglobinuria. Phagocytosis of the erythrocytes occurred in infectious diseases such as streptococcicosis and in certain intoxications. It is suggested that the microbes in question or their toxins and certain hemolytic poisons may exert an opsonizing effect. Phagocytosis of the abnormal blood cells of sickle cell anemia and pernicious anemia may occur in the peripheral blood without a preceding opsonization, and it may be due to the pathologic condition of the surface and the shape of these cells. The observation of erythrocyte-containing cells in blood specimens suggests that one should watch for antibodies specific for erythrocytes or for poisons and micro-organisms which are known to be harmful to the red blood cells.

Klin. Monatsbl. für Augenheilkunde, Stuttgart

112:1-96 (May) 1947. Partial Index

Intraocular Tuberculosis. K. A. Reiser. -p. 1.
When to Perform a Prophylactic Attachment of Retina. F. Fleischer. -p. 29.
*Changes in Fundus Oculi in Panmyelophthisis: Pathogenesis of Detachment of Retina. H. Krümmel. -p. 30.
Retinal Vessels in Hypotension. A. Jäger. -p. 44.
*Involvement of Eye in Typhus. G. Wilhelm. -p. 48.

Detachment of Retina in Panmyelophthisis.--Krümmel reports the case of a woman, aged 26, who died of severe anemia which was refractory to all treatment and in which all blood cell systems were destroyed. In the terminal stage multiple necrotic and hemorrhagic processes were visible in the eyegrounds and there was secondary detachment of the retina. On the basis of microscopic observations in the course of necropsy, the author discusses the currently accepted theory of detachment of the retina by cystic degeneration and subsequent rupture and raises the question of "detachment of the retina without tear." Microscopic details show that as a rule it is not the entire retina with its pigment epithelium that becomes detached from its base, but only the true retina from the pigmented layer. Discussing the topography of retinal hemorrhages, the author says that all three forms are really intraretinal and the terms subretinal and preretinal do not correspond with the microscopic observations. It would be more correct to speak of deep and superficial hemorrhages and to designate the third kind as interstitial hemorrhage.

Involvement of Eye in Typhus.--According to Wilhelm the eyeball may be involved in typhus. Typical nodules have been detected in the arteriolar walls of the orbital tissues and of the rectus muscles of the eye. The initial conjunctivitis of spotted fever is caused by roseola of the conjunctiva. The involvement of the cornea in typhus is always secondary. The nodular iritis usually subsides completely. In the choroid the vascular wall nodules are found chiefly in the arteries in the layer of the medium and larger vessels. The retina either shows secondary changes in the form of circumscribed detachment of the retina and retinal edema over the choroid foci or shows the typical nodules in the retinal arteries near the papilla. The involvement of the optic nerve in typhus takes the form of diffuse infiltration of the arachnoidal sheath and of the endoneural septums; typical vascular wall nodules are found in the central artery. The most frequent change of the fundus oculi in typhus is the prominent papilla, which is usually interpreted either as incipient choked disk or as optic neuritis. Circumscribed infiltrations of choroid and retina, the latter connected with a retinal artery, are also eyeground changes typical of typhus. Arteriolar changes near the papilla, which appear early in typhus, are most probably the result of perivascular infiltrations. Hemorrhages which are observed in the nerve fiber layer probably result from the venous stasis that accompanies optic neuritis or from the venous thrombosis that is brought on by the lowered blood pressure. Most changes in the fundus oculi subside without sequelae in several weeks. The only lasting complication is postneuritic atrophy of the optic nerve, but this is rare.

Medicina, Buenos Aires

7:393-496 (Oct.) 1947. Partial Index

Penicillin Treatment of Subacute Bacterial Endocarditis. A.C. Taquini and B. B. Lozada. -p. 417.

Penicillin in Subacute Bacterial Endocarditis.--Taquini and Lozada resorted to penicillin therapy in 7 cases of subacute bacterial endocarditis caused by streptococci of the viridans group. The patients were between the ages of 15 and 30 years. The previous cardiac disease was rheumatic fever in 6 patients and congenital heart lesion in one. Clinical and bacteriologic recovery was obtained in 6 cases. Repeated blood cultures made at intervals of four or five days offer the most efficient method for regulating the adequate dosage of penicillin and observing the course of the disease. The initial daily dose was 500,000 units. Negative blood cultures by the end of the first week of treatment, indicated that the daily dose was

adequate and that it should be administered for at least four consecutive weeks. Positive blood cultures after the first week of administration of 500,000 units of penicillin a day indicated progressive increase of the dose. The dose was then maintained for at least twenty-one days. Daily doses of from 600,000 to 1,200,000 units of penicillin were required in 3 of the 7 cases. The authors prefer intramuscular injections at three hour intervals. Continuous intravenous administration of penicillin with heparin is inconvenient and painful. The trocar for intravenous administration produces edema of the walls of the veins and their consequent obstruction.

Praxis, Bern

37:81-104 (Feb. 5) 1948. Partial Index

*Chemotherapy of Diseases of Biliary Tract. K. A. Lämli. —p. 81.
Measures Against Resistant Tuberculosis. H.O. Pfister. —p. 92.
Significance of Tuberculin Reactions in General Evolution of Tuberculosis. P. Press. —p. 95.

Chemotherapy of Diseases of Biliary Tract.—Discussing the difficulties encountered in the diagnosis of diseases of the gallbladder, Lämli stresses the use of duodenal aspiration, which has diagnostic as well as therapeutic value. The important factors in the treatment of diseases of the biliary tract are combating infection and biliary stasis, and protection of the liver. Nicotinamide is the most promising hepatotropic substance to serve as a vehicle for antibacterial substances. The author mentions a substance (bilamid) that has been synthesized on the basis of this reasoning and which in experiments on animals showed a decided antibacterial and choleretic action and at the same time retained the pellagra-preventive action of the nicotinamide. The efficacy of the new therapeutic preparation was proved on 31 patients in whom the biliary flora was studied bacteriologically and culturally. The preparation was employed in 221 patients of whom 152 had inflammatory diseases of the biliary tract. It proved valuable not only in the biliary disorders but in acute enteritis. Effects varied in conditions like duodenal ulcer, gastroduodenitis and ulcerative colitis. The preparation can be given by mouth or intravenously. In serious cases the oral and intravenous therapy can be combined.

Prensa Médica Argentina, Buenos Aires

35:195-224 (Jan. 30) 1947. Partial Index

*Succinic Acid Stimulating Respiration. M.R. Castex, L.E. Camponovo and F.E. Labourt. —p. 195

Succinic Acid Stimulating Respiration.—Twenty patients with anoxia and 3 normal persons were given an intravenous injection of 5 cc. of a 1 per cent succinic acid solution. The respiratory rate was determined before and after administration of the drug. Greatly improved respiration was observed both in normal persons and in patients. The rhythm of respiration improved in all cases of anoxia, with a tendency to become normal. Oxygenation of blood in the lung also improved, as the blood showed a better saturation with hemoglobin. The drug did not cause any change in the arterial pressure or any other unpleasant reaction. Improvement in respiration in patients with anoxia lasted for more than forty-eight hours in 14 patients and for more than one hour in 7 patients.

Presse Médicale, Paris

56:93-104 (Feb. 7) 1948

*Administration of Ouabain in Aerosols. A. Ravina, A. Feder, M. Nory and J. Sorvier. -p. 93.
*Efficacy of Penicillin in Scarlet Fever and Its Complications. T. Jersild. -p. 93.
Diagnosis of Primary Tuberculosis of Cervix. P. Noroand and P. Labignette. -p. 95.

Administration of Ouabain in Aerosols.—According to Ravina and his associates the cardiac stimulant ouabain is ordinarily administered by the intravenous route. If prolonged treatment is required, this will involve many injections, which may cause considerable difficulties, particularly in obese and edematous women, in whom the superficial venous network is not especially evident. It has been demonstrated that cardiac stimulants administered in the form of aerosols can be absorbed by way of the respiratory tract. Sixteen drops of a 1 per cent solution of ouabain in a glycerin-alcohol medium given in aerosol form proved as effective as the intravenous injection of 0.25 mg. of ouabain. Many patients with cardiovascular defects were treated in this manner. The authors present 5 illustrative case histories. It is sufficient to employ the aerosol once or twice a day for a few minutes.

Penicillin in Scarlet Fever.—Jersild says that at the Blegdam hospital in Copenhagen 100 patients with scarlet fever have been treated with penicillin since December 1945. Results show that a daily dose of 90,000 to 150,000 units, depending on the age of the patient, is sufficient to clear the nose and throat of streptococci in forty-eight hours. Two injections a day should be continued for six days. The higher concentrations obtained with injections every three hours are not necessary. With the two daily injections the angina is rapidly healed and the fever persists for only four or five days instead of seven days as in the cases treated with sulfonamide drugs. The average hospitalization was only eight days. Complications in the form of otitis and nephritis were never observed, whereas formerly a considerable number of patients with scarlatinous otitis required mastoidectomy.

Riforma Medica, Naples

61:405-424 (Sept. 15) 1947. Partial Index

*Blood Groups and Tissue Groups. G. Oliva and D. Farbetta. -p. 414.

Blood Groups and Tissue Group.—The authors observed that intravenous injections of juice from gastric mucosa in the therapy of hypochromic anemia caused in some cases symptoms similar to those from incompatibility of blood groups. Then they carried out experiments. The material consisted of large portions of resected stomach from patients with either gastric or duodenal ulcers, from which juice was prepared. The juice was unmistakably free from traces of blood serum. The technic for preparation of the juice is described in detail. It was found that both the blood serum of the donor of the gastric mucosa and the juice of the mucosa agglutinated erythrocytes in the blood of persons in opposite blood groups and did not cause agglutination in the blood of persons whose blood group was the same as that of the donor. Agglutination of blood of persons in opposite blood groups occurred more rapidly when blood serum of the donor was used than when juice of gastric mucosa was used. Complement fixation occurred in the blood serum of normal persons of a given blood group who received from two to four parenteral injections of juice of gastric mucosa of a donor belonging to a different blood group. The phenomenon occurred when the blood serum of the receiver was treated with the juice of gastric mucosa which was previously used for sensitization. It did not occur when the donor of gastric mucosa and the receiver of its juice were of the same blood groups. The authors therefore conclude that gastric mucosa has specific group properties corresponding to those of blood groups. The authors' article is a preliminary note.

Book Notices

Endocrine Therapy in General Practice. By Elmer L. Severinghaus, M.D., F.A.C.P., Director, Endocrine and Nutritional Clinics, Gouverneur Hospital, New York. Sixth edition. Cloth. Price, $4. Pp. 264, with 49 illustrations. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1948.

This helpful little volume will be appreciated by the general practitioner who is confused and has difficulty with the intricate and complex ramifications of endocrine relationships. As with the preceding editions, it is simply written but contains the essentials necessary to the sound practice of endocrinology. This latest edition has been polished and been treated to eliminate some of the minor ambiguities present in the earlier ones. The reviewer has fault with only two sections of this volume: the scant attention to the psychologic factors in the development and treatment of overweight and the lack of a systematic discussion of the ovarian dysfunctions. In regard to the latter, most physicians would be appreciative if this chapter contained headings of the various ovarian dysfunctions and their specific treatment rather than a more or less generalized discussion of these problems. Otherwise, this book is to be commended for its value to practitioners.

Endotracheal Anesthesia. By Noel A. Gillespie, D.M., B.Ch., M.D., Associate Professor of Anesthesia in the University of Wisconsin, Madison. Second edition. Cloth. Price, $4. Pp. 237, with 57 illustrations. University of Wisconsin Press, 811 State St., Madison 5, Wisconsin, 1948.

Any one who has been fortunate enough to read the first edition of this book (1941) will be pleased to know that in the second edition the author has expanded the book from 187 to 237 pages. He has enlarged certain portions of the text and has corrected any errors that he has discovered or that have been brought to his attention. He fortunately has had a fine response from his readers and has received many constructive suggestions which have been followed. However, he has not departed from his original plan of writing a book which is aimed at increasing the clinical skill of the anesthesiologist without necessarily preparing him for examinations. Well written books devoted to one subject are valuable; however, when a second edition appears, it has all the advantages of containing not only the opinions of the author but those of a great many of his readers. Every anesthesiologist should obtain a copy of this book.

Gynecological and Obstetrical Urology. By Houston S. Everett, A.B., A.M., M.D., Associate Professor of Gynecology, the Johns Hopkins University, Baltimore. Second edition. Cloth. Price, $6. Pp. 539, with 232 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The need for fair and balanced presentation of related specialties is self evident. This applies particularly to conditions which confront the obstetricians, gynecologists and urologists. This second edition contains ample information about the anatomy and physiology of the urinary system. The relationship of this system to the reproductive system receives proper considerations. The illustrations are ample, clear and logical.

More emphasis has been placed on gynecologic complications than on conditions in pregnancy, labor and the early puerperium. In the next edition it is suggested that the present adequate obstetric aspects be expanded to match the gynecologic considerations. This imbalance is natural, inasmuch as Dr. Everett is a gynecologist. The urologist should note the author's understanding of urology and urologic conditions.

The author has brought together problems which the urologist, gynecologist and obstetrician must treat and offers thorough diagnostic and therapeutic procedures. For these reasons alone every urologist who sees obstetric and gynecologic patients should possess or have access to the valuable material in this volume. For the same reasons also this edition is recommended to obstetricians and gynecologists, to general practitioners who do obstetrics and to general surgeons who treat pelvic conditions.

The publishers deserve credit, too, for the quality of paper and style and size of type.

Developing Your Child's Personality. By Goloie McHugh, Ph.D. Cloth. Price, $2.75. Pp. 234. D. Appleton-Century Co., 35 W. 32d St., New York 1, 1947.

This is a pleasantly written discussion of early training and rearing of children. The emphasis is upon the parent's responsibility for healthy emotional and social growth of the child, as the title indicates. The author starts with "Planning for Parenthood," and the final chapter is "Preparing for the Second Child." The material presented in this book is good and can be profitably read by expectant parents or parents of small children. An easy, chatty style in which the reader is consistently addressed in the second person is generally acceptable, though the reader at times feels that he is being lectured. The author makes of baby rearing something relatively simple, a pleasant experience for parent and child. On the whole, this is a good attitude to adopt in talking with parents. But the author overlooks or ignores, at least in this book, the deeper powerful influences of family relationships as they reflect themselves in character structure and in healthy or unhealthy life attitudes. The following sentence indicates his point of view: "There is really no more mystery about the hampering fears from which children and adults suffer, or about their inability to get along with others, than there is about dislikes for milk or learned unwillingness to try new foods." It is true that there is no mystery about basic human relationships, but the author implies that a simple conditioning, all consciously imposed by the parents, is all that is involved in early child rearing. This approach is adequate for a large number of parents who themselves have been reared in a rather healthy manner and who can carry this experience over into their dealings with their children. For a large number of parents not as well equipped, a more penetrating understanding of the nature of childhood and parental likes and dislikes, fears and hostilities would be required. This book can readily be recommended to parents.

Psychoanalytic Therapy: Principles and Application. By Franz Alexander, M.D., and Thomas Morton French, M.D., (with Staff Members of the Institute for Psychoanalysis, Chicago). Cloth. Price, $5. Pp. 353, with 1 illustration. The Ronald Press Company, 15 E. 26th St., New York 10, 1946.

Renewed interest in the problems of emotional disturbances and their effects on body changes have made an understanding of basic principles of psychoanalysis a necessity for the modern physician. Drs. Franz Alexander and Thomas M. French with the assistance of the staff of the Chicago Institute of Psychoanalysis have written a compact, readable textbook of the latest developments in the field of dynamic psychiatry. A careful review of 292 patients seen at the institute, many private patients and the broad experiences of Drs. Alexander, French and other staff physicians formed the basis for the book.

Emotional and personality changes were viewed from a broad basis that included not only infantile

experiences, but adolescent and adult reactions. Unlike the standard psychoanalysis, the authors did not confine themselves to the problems of the chronic neurotic patients, but included a study of acute neurosis and incipient neurosis. From their observations they were able to develop a better appreciation of the painful reactions to the ego that often occurred in adult life as well as a knowledge of the mechanisms by which adults met such situations. This led to a better understanding of the development of personality and gave meaning to the dynamic approach of certain psychiatrists.

Treatment of emotionally disturbed patients has been developed along the lines of their individual needs. Traditional daily psychiatric interviews, long held by some as essential for the proper understanding of patients, have been questioned. The use of the couch as a means of enabling the patient to express freely whatever enters his mind, called free association, should be followed by a careful, subtle and effective means of emotional reeducation. It was felt that discreet remarks from the analyst may speed up the process and have the patient reorient himself more quickly than by the standard practices of prolonged analysis. In a sense it was individualizing the treatment of patients just as is done in other fields of medicine.

Flexibility in psychoanalysis was essential to meet the varying problems confronting the analysts. Patients who showed favorable response to treatments should have their interviews spaced farther and farther apart to avoid dependence on the analyst. Often judicious scheduling of interviews allowed the patient to translate and incorporate much of what he learned while on the couch into actual life experiences and thus develop his personality so that he could more effectively cope with future interpersonal relations. Treatment should not be considered to continue for a long period of time merely so that all phases of the patient's personality can be explored, but when a satisfactory adjustment of the salient problems has been met in the opinion of the psychiatrist, the patient should be allowed to demonstrate his progress. Psychoanalysts trained in the traditional methods will not agree with the authors; however, the results obtained at the institute indicate that Drs. Alexander and French have more realistically met the needs of many different kinds of emotional disturbances than has been accomplished in the past. Their dynamic approach also makes it possible for more persons with acute, latent or mild neurosis to be benefited by psychiatric treatment.

The second part of the book contains illustrative cases of the various methods of psychoanalytic therapy. Efficacy of short interviews and treatment, value of supportive therapy and emotional reeducation, various methods of using transference, alleviation of rigid standards and narcosynthesis in war neurosis each form individual chapters. One or several patients' histories were given in detail, followed by a short discussion of the important features and in some instances a brief summary of the material presented in the chapter.

In the concluding chapter Dr. Alexander ably presents the development of psychoanalysis from Freud to the present, gradual acceptance of the dynamic concept of personality development and the need of further experimentation to find easier and better methods of treating all emotionally ill persons.

The book should be of help to general practitioners, medical students, psychiatrists, psychologists and social workers. Each staff member is credited with his contribution, and Miss Helen Ross, administrative director of the institute, was responsible for making it a readable interesting handbook of treatment rather than a disorganized compilation of many observations and points of view. The book is printed in easily readable type, well indexed and is recommended to all interested in understanding psychosomatic medicine as well as the larger aspect of improving man's ability to live with man.

Beiträge zur Kenntnis der Blutgerinnung. Von W.E. Nicken, Professor für experimentelle Medizin an der Universität Oregon. Paper. Price, 9 Swiss francs. Pp. 96, with 26 illustrations. (Imported by Grune & Stratton, Inc., 381 4th Ave., New York 16); Benno Schwabe & Co., Klosterberg 27, Basel, 1947.

This little monograph contains some original contributions of the author to the confusing problems of blood coagulation. First a relatively simple two step method for the determination of prothrombin is described. Although the practical clinical significance of Quick's one step method is acknowledged, the theoretical foundation of the Quick test is severely criticized. After description of the influence of many factors on the determination of the prothrombin time, the effect of amino acids, ascorbic acid, taurin and cystein are particularly mentioned. Dihydroxyphenylalanine was found to inhibit coagulation in vitro and in vivo and is recommended for a clinical trial in thromboembolic disease. The book contains contributions of interest to the investigator in the field of coagulation.

Textbook of the Ear, Nose, and Throat. By Francis L. Lederer, B. Sc., M.D., F.A.C.S., Professor and Head of Department of Otolaryngology, University of Illinois College of Medicine, Chicago, and Abraham H. Hollender, M. Sc., M.D., F.A.C.S. Second edition. Cloth. Price, $7. Pp. 506, with 182 illustrations. F.A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1947.

This is a textbook designed for medical students; it should be of great value to the general practitioner. Among its finely illustrated pages are to be found practically every condition which might be included in otolaryngology. Because the authors appreciate the limitations of those for whom the book is intended, they adhere to a simple clear style which serves their purpose well. Essential fundamentals are stressed. The first section, consisting of five chapters, deals with general considerations under the general heading: "Introductory"; it is well done. The book is divided into nine sections comprising seventy-two chapters. Deserving of special mention are the previews which serve as a background or basis for the text which follows, and the one hundred and eighty-two illustrations, which are consistently of high quality.

Within its scope this is a comprehensive and complete textbook which has already gained wide usage and favorable recognition. The style, the print, the paper, the general format, all combine to encourage those who may peruse it to utter words of praise and commendation. The authors and their publisher are to be congratulated.

Congenital Malformations: A Study of Parental Characteristics with Special Reference to the Reproductive Process. By Douglas P. Murphy, M.D., F.A.C.S., Assistant Professor of Obstetrics and Gynecology and Research Associate in the Gynecean Hospital Institute of Gynecologic Research, University of Pennsylvania, Philadelphia. Second edition. Cloth. Price, $5. Pp. 127, with illustrations. J.B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This second edition of this monograph aims to throw additional light on some of the questions which parents of congenitally defective children are likely to ask their doctors. The material for this study represented the families of malformed children who had died. The names were obtained from stillbirth and death certificates in Phila-

delphia and its environs.

The author concludes that malformations are congenital or environmental in origin. There are only two environmental conditions which lead to malformations, rubella and therapeutic irradiation of the pelvic organs during pregnancy. Rubella early in pregnancy results in a high incidence of malformations of the fetus. Preconceptional rubella probably does no harm to the offspring. In a study of 38 unhealthy children born after postconceptional pelvic irradiation, in 28, or 73.6 per cent, the defect could be definitely attributed to radiation. The majority of them were mentally defective. Although irradiation to the maternal pelvic organs during pregnancy is likely to cause serious damage to the fetus, there need be little fear of damage to the germ plasm and subsequent abnormal fetuses. This conclusion by the author is premature, for much more extensive data will be available in the near future on this subject.

Most of the malformations are genetic in origin. The chance that any couple will have a defective offspring is 1 in 200. The likelihood that a subsequent malformed child will be born to a family which has had a malformed child is increased twenty to twenty-five times. The hazard of malformations increases with the age of the mother, rising progressively year by year after the mother has passed 30, and is three times as great after 40 as after 30. Again, youth is the best safeguard for normal reproduction.

400 Years of a Doctor's Life. Collected and Arranged by George Rosen, M.D., and Beate Caspari-Rosen, M.D. Cloth. Price, $5. Pp. 429. Henry Schuman, 20 E. 70th St., New York 21, 1947.

Among the most inspiring contributions to medical biography is this contribution of collections from some of the best known biographies in medical biographic literature. The authors have divided selections from great numbers of biographies into such headings as early years, school days, the medical student, the doctor marries, the doctor goes to war and reflections on life and death. Interspersed are brief notes as to the individual physicians whose contributions are included. This book can be read with profit by every senior medical student and intern, by every physician who is at all concerned with the philosophy of medicine. Many a graduating class would profit more by the reading of selections from this volume than by the rehashes of medical lore and opinion which are usually accumulated in the form of convocation addresses.

Catalogue of Medical Films. Compiled by The Royal Society of Medicine and The Scientific Film Association. Paper. Price, 7s.6d. Pp. 125. ASLIB (Association of Special Libraries and Information Bureaux). 52 Bloomsbury Street, London, W. C. 1, 1948.

This catalogue consists of two parts, namely: Part I, an alphabetical index of eight hundred titles of motion pictures subdivided by subject groups such as anatomy, dermatology and endocrinology, and a numerical cross reference. Part II contains the names of two hundred abstracted films which appear to be rather complete; however, no evaluation has been made on any of the listed films. In the numerical cross reference section, seventy-four catalogue numbers are included without titles.

In addition to films for the medical profession, motion pictures on such subjects as health, dentistry and veterinary medicine are also included.

Films representing several countries other than Great Britain, such as United States, Germany, Australia, Sweden and Scotland, are listed in this catalogue

The appendix consists of a brief history of the following societies: The Scientific Film Association, organized in 1943 and devoted to the interest of film users, The Royal Society of Medicine and the Association of Special Libraries and Information Bureaus, which acts as a clearing house for specialized information and to help remedy a certain lack of knowledge of sources of information.

The organizations concerned in the preparation of this catalogue are to be commended for publishing this consolidated list of medical motion pictures. However, the publication would be of little practical value to the members of the medical profession in the United States inasmuch as the films would not be readily available for their use.

Mind and Memory Training. By Ernest E. Wood. Reprint of second edition. Cloth. Price, $2.50. Pp. 188, with illustrations. Pitman Publishing Corporation, 2 W. 45th St., New York; Sir Isaac Pitman & Sons, Ltd., Pitman House, 39-41 Parker St., Kingsway, London, W. C. 2, 1945.

This book attempts to set up a natural and spontaneous memory system patterned after the mind processes of persons with good memories. Many of the author's conclusions are based on study and observation of the memory systems of Europe and India.

Four "Roads of Thought "which hold ideas together in the mind are suggested and labeled as the laws of class, parts, quality and proximity. Connecting ideas according to these laws in rational order is held to be the secret of memory training. Concentration, for example, is simply the art of detailed examination of an object in the light of these four laws.

The value of creating clear mental images, the constructive use of imagination, the relation of study and reading to memory training, and methods which may be used to simplify or symbolize abstract or complex ideas are discussed in detail. Ways of developing and utilizing a logical series and expanding ideas are among other processes given considerable attention. Memory tricks and some of the feats of the memory men of India are analyzed and described.

The methods advocated are a departure from commonly accepted procedures. While the book makes interesting reading and certain of the devices may have practical merit, it is difficult to see their value for those whose patterns of thinking and study have been established along rather fixed lines.

Diabetes and The Diabetic in the Community. By Mary E. Tangney, R.N., Diabetic Supervisor, Hartford Hospital, Hartford, Connecticut. Cloth. Price, $2.75. Pp. 259, with 18 illustrations. W. B. Saunders Co., W. Washington Sq., Philadelphia 5, 1947.

Where Miss Mary E. Tangney, R.N., confines herself to advice to patients from the nurse's point of view and to the place which the nurse holds in the field of diabetes she does a good job; the fault with this book is that the authoress takes over too much the function of the physician. She says that "The physician usually orders a small dose of protamine zinc insulin, approximately 20 units, at the first visit, after diagnosis has been established. If the patient is young, 30 units may be ordered; if the patient is elderly, 10 to 16 units." Many physicians do not follow this practice; the layman or nurse who reads this book may say that his physician is not giving the proper treatment. This is a sample of the many controversial questions, such as the type of insulin that is most effective in the treatment of diabetes, the use of alkali in the treatment of coma, the various methods of testing for urine sugar, on which the author reaches definite conclusions. Since physicians are not agreed on these subjects, a nurse should hesitate to decide for the public what is the truth.

In the preface Miss Tangney says that the book is written primarily for the person in a community

not accessible to hospitals. Later in her discussion of the coma treatment she states that "when the blood sugar falls to a level of 200 milligrams, glucose may be added to the saline, or carbohydrate may be given orally. Dr. Howard Root does not believe the glucose should be added until the blood sugar has fallen to this level." Dr. S. Soskind and his followers do not agree with this. The instance just mentioned is one of several in the book in which the author takes a stand with doctors of a certain group of thought, opposed to the opinions of another group. The patient is only confused by such statements, and not helped.

Pasteurization. By Harry Hill, F.R.San.I., A.M.I.S.E., F.A.I.A., Provincial Milk Advisory Officer, Ministry of Agriculture and Fisheries. Second edition. Fabrikoid. Price, 21s. Pp. 296, with 73 illustrations. H.K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1947.

In a thorough, concise manner the author has presented the essential arguments in a brief supporting "pasteurization" as a public health safeguard for fluid milk supplies. The need for safeguarding milk consumers against milk-borne infectious diseases is reviewed and the usual criticisms advanced against pasteurization are answered. The essentials of the safe, quality milk supply are set forth as (1) clean milk, (2) licensing of milk pasteurization plants, (3) medical control personnel, (4) routine inspection, and (5) laboratory control. The major part of the text is devoted to a detailed discussion of dairy plant construction, maintenance and operation. The necessity for efficient supervision of milk pasteurization plants by both management and public health officials is emphasized. The various methods of applying the pasteurization process to milk and milk products is discussed in detail. This subject has been treated thoroughly and provides a splendid analysis of the various types of equipment developed for the application of the pasteurization process. The information contained relative to pasteurization processes will be of particular interest to dairymen as well as health authorities. The postpasteurization processes involved in the packaging and distribution of pasteurized milk and milk products as well as the sanitationn of processing equipment are probably of specific interest to dairymen; however, the author stresses the efficiency of these processes in relation to safe milk supplies. The importance of routine inspections and laboratory control is also discussed; in particular, methods of making inspections and the various chemical and bacteriologic devices available for use by milk-control agencies. Throughout the entire book, efficiency is cited as the method of dissipating suspicion of the pasteurization process and improving its commercial application. The responsibility for efficient application rests with the progressive operators of plants for milk pasteurization and adequate legislative control.

A Textbook of Surgery for Nurses. By Edward S. Stafford, B.A., M.D., F.A.C.S., Assistant Professor of Surgery, The Johns Hopkins University, Baltimore, and Doris Diller, B.A., R.N., Instructor and Supervisor, Surgical Nursing, The Johns Hopkins Hospital School of Nursing, Baltimore. With a foreword by Anne D. Wolf, M.A., R.N., Director of the School of Nursing and Nursing Service, The Johns Hopkins Hospital. Cloth. Price, $3.25. Pp. 577, with 170 illustrations. W. B. Saunders Co., W. Washington Sq., Philadelphia 5, 1947.

This book is written by a noted surgeon and teacher of surgery, in collaboration with an experienced surgical supervisor and teacher of surgical nursing. Believing that the more the nurse knows about surgery, the aims of the surgeon and what has been done in the operating room, the better will she be able to care for the surgical patient, the authors' chief purpose in writing the book is to furnish this background of surgical information. This they accomplish unusually well. The material is up to date and well presented. It is arranged in fourteen units which adequately cover the field of general surgery and all the surgical specialties (several chapters are contributed by colleagues). The specific nursing care of each condition is described carefully, so that the nurse is fully aware of her exact duties in every situation.

The book is written in clear, simple language. It is concise and singularly free from nonessentials and unnecessary technicalities.

Outstanding are the numerous pen and ink sketches made especially for this work by members of the Art Department of the Johns Hopkins Medical School. These excellent and accurate illustrations greatly illuminate the text and thus enhance its teaching value.

The book is recommended unhesitatingly for the purpose for which it is intended.

The 1947 Year Book of Obstetrics and Gynecology. Edited by J.P. Greenhill, B.S., M.D., F.A.C.S., Professor of Gynecology, Cook County Graduate School of Medicine, Chicago. Fabrikoid. Price, $3.75. Pp. 590, with 117 illustrations. Year Book Publishers, 304 S. Dearborn St., Chicago 4, 1948.

Here are the same excellent qualities that readers of this year book have come to appreciate in the past score of years or more. The articles reviewed are those which have worth while contributions; when necessary, controversial reports and unacceptable conclusions are pointed out by the able editor, whose comments and addenda from his rich personal experience, broad view and knowledge of the literature offer valuable and constructive critiques that help to clarify the moot questions. As in former years, the scope of the articles reviewed includes practically all, if not all, of the important papers published in 1947 dealing with obstetric and gynecologic problems. The Year Book of Obstetrics and Gynecology has a welcome place in the library of obstetricians and gynecologists, as well as the general practitioner. It fulfils a definite need for all these groups of physicians who may otherwise have missed many of the worth while publications. It brings them up to date with the literature at the beginning of each year

Chirurgie fonctionnelle gynécologique: Indications opératoires, techniques et considérations pratiques en rapport avec les acquisitions endocrinologiques. Par R. Bourg, chef du service universitaire de gynécologie à l'Hôpital Brugmann, Bruxelles. Préface de L. Donay, président de la Société française de gynécologie, Paris. Paper. Price, 750 francs. Pp. 268, with 137 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6e; Editions Desoer, 21 Rue Sainte-Véronique, Liège, 1947.

This small, paper-covered volume presents the indications, technics and practical considerations for surgical procedures to correct malfunction of the pelvic organs. It is difficult to confine the discussion to this phase of gynecology because disturbed function of organs may be the result of disease as well as perverted function.

The author describes the accepted methods of evaluating ovarian function, such as biopsy of the endometrium, body basal temperature and vaginal smears. He recommends that endometrial biopsy be carried out forty-eight hours prior to menstruation rather than at the onset of bleeding. However, many of the surgical procedures on the ovary are not used in this country. We rarely puncture or resect follicle cysts. Ovarian transplantations are not done. He does emphasize the importance of conservation of ovarian function in young women.

In the treatment of sterility, he likewise suggests many operative procedures which have long

been obsolete. The numerous operations on the cervix such as Bier's leech, Pozzi operation, Irabarne's tube, resections and amputations have long fallen into discard. However, operations for the establishment of tubal patency should be done more often since the introduction of newer surgical procedures.

There are many illustrations which help to clarify the text. The book is well worth reading by all interested in gynecology, for it presents a wholesome point of view in the management of many gynecologic conditions.

A Reference Manual on Modern Electric Household Refrigeration and Home Freezing. Reference Handbook No. 3, Westinghouse Educational Series. New edition. Paper. Pp. 28, with illustrations. Westinghouse Electric Corporation, Home Economics Institute, Mansfield, Ohio, 1946.

This is a useful booklet of twenty-nine pages which gives basic information with reference to home refrigeration in nontechnical terms. The refrigerator, the freezer and home methods of quick freezing are discussed. The booklet should be useful to those who have household problems in this field.

A History of the Worcester Royal Infirmary. By William Henry McMenemey, M.A. Cloth. Price, 21s. Pp. 356, with illustrations. Press Alliances, Ltd., Bouverie House, Fleet St., London, E.C.4, 1947.

This book prepared for the bicentenary of the Worcester Royal Infirmary commemorates the founding of the hospital in 1746. It is an absorbing story of an institution which, founded in the spirit of charity, has rendered unselfish service to the people of its community for two hundred years under the traditional system of voluntary support. Authoritative and rich in illustrations, the book recounts the early days of the hospital, its gradual growth and development and eventual expansion into the modern hospital service which characterizes the present era. Interspersed with the hospital events which flow as the central theme is a wealth of material on administrative problems, the changing pattern of nursing service and the growth of medical practice, ethical relationships, early differentiation in medicine and surgery and the formation in 1732 of the Provincial Medical and Surgical Association, which in turn became the British Medical Association. Glimpses of contemporary social life are evident in many of the chapters, including the special accounts of physicians and other persons prominent in the history of the institution. This book with its vast amount of information, skilfully presented, is a welcome addition to the literature of the hospital field.

The Occasion Fleeting. By Hugh Barber. Fabrikoid. Price, 15s. Pp. 199. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1947.

Here is a collection of essays most of them previously published in the Guy's Hospital Gazette and in the Practitioner. The author's style is pleasant and of the type in which many physicians indulge when sitting around a fireplace for a gossipy evening. Some of the British idioms and diction may be slightly confusing.

A Doctor in the House. By Henry Pleasants Jr., M.D., F.A.C.P. Cloth. Price, $3. Pp. 286. J. B. Lippincott Co., 227 S. 6th St., Philadelphia 5, 1947.

The author of this interesting book of medical reminiscences has a style well adapted to a public audience. The book is essentially an autobiography of its author, who has been for some years a general practitioner. His career brought him into contact with many leaders of medicine, particularly in the East. There are accounts of medical service in World War I, of the relationship of doctors to patients and medical bills, and some special discussions of child care and allergy. His chapter dwelling on the physician as a writer will be an inspiration to every young physician with similar ambitions. Unfortunately Dr. Pleasants believes that young men can be encouraged to practice in rural areas by educating a poorer quality of physicians who will enter medical school directly from the high school. Actually he believes that the way to get more physicians into the rural areas is to make medical education less difficult, but most leaders are convinced that a good country doctor ought to be even better than the general practitioner from the city.

Diseases Transmitted from Animals to Man. By Thomas G. Hull, Ph.D., Director, the Scientific Exhibit, American Medical Association. Third edition. Cloth. Price, $10.50. Pp. 571, with 75 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

Tremendous progress has been made in the control of many of the diseases that formerly passed from animals to man. Some, such as bovine tuberculosis and glanders, have been practically eliminated as menaces in the United States. However, diseases undergo evolution exactly as do other factors in human life. Now new chapters have become necessary on such subjects as tsutsugamushi disease, Q fever, jungle yellow fever and Haverhill fever. Moreover, what is one of the greatest outbreaks of foot and mouth disease ever to appear is now menacing cattle in Mexico and the United States. It is well to have an authoritative work of this kind.

Essentials of Prescription Writing. By Cary Eggleston, M.D., Associate Professor of Clinical Medicine, Cornell University Medical College, New York City. Eighth edition. Cloth. Price, $2. Pp. 155. W.B. Saunders Co., W. Washington Sq., Philadelphia 5, 1947.

The fundamentals of prescription writing would seem to preclude radical change. But striking changes have taken place, as seen in the growing tendency to use the metric system in the substitution of English titles for the Latin by the Pharmacopoeia, the National Formulary and in prescriptions, in the dropping of the old galenicals and their replacement by chemical drugs and active principles, in the tendency to prescribe potent drugs by themselves rather than in a shotgun mixture and in the extensive employment of hypodermic and intravenous administration. We must still write prescriptions, but the finished prescription differs from that of thirty years ago.

While the author has devoted much space, as in previous editions, to the prescription in Latin, he has added a whole chapter on The Modern Prescription, and out of the old has graduated into the new as a matter of evolution. He accepts "about 5 cc." as the equivalent of a teaspoonful, though this is a variable quantity in household teaspoons. He does not urge the use of medicine glasses or the modern plastic teaspoons, which accept 4 cc. as one teaspoon and are to be had cheaply. His descriptions of the Pharmacopoeia and the National Formulary require clarification. Yet this little book, which covers the subject fully but briefly, may be just what is needed to ease the doctor's mind when he issues an order on the pharmacist in the form of a prescription.

V 19

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TRICHOMONAS VAGINALIS

To the Editor:—In November 1944 a white woman, aged 25, called her physician for uncontrollable vaginal bleeding. A diagnosis of miscarriage was made and the patient was treated accordingly by nonsurgical methods. Bleeding persisted until February 1945, when I was called to see the patient. I did a dilatation and curettage, the report reading "premenstrual stage." Testosterone was given over a period of time without success. Bleeding continued despite my efforts, and on a last resort a supravaginal hysterectomy was done; the ovaries and tubes were left intact. The pathology report stated that the uterus was twice its normal size and that here was a chronic metritis.

She did well until a month ago, when she came in with the story of having noticed blood spots on the sheet on arising. She noticed this about four or five times even without intercourse. She also was aware of a profuse vaginal discharge for the past year, and recently intercourse had become extremely painful. Other than that, she had been feeling better than in years. The discharge proved to be due to a Trichomonas infection. The cervix was normal in size, shape and position; there were no erosions or polyps. A pelvic examination revealed no masses bimanually. The consultant, after his examination, was convinced this was all due to the Trichomonas infection.

I am interested to know whether this infection will give bleeding and whether another dilatation and curettage is indicated? Would a large ovarian cyst, if one was present, cause bleeding in this case?

Hilda Lang Bowman, M.D., Lyon, Mass.

ANSWER.—The data offer much room for speculation. Did the young woman actually have a spontaneous abortion? A Friedman test at the time might have given the answer, as might also the vaginal smear method of Papanicolaou. The findings of a premenstrual stage in the curettings or secretory stage are also of interest because patients rarely bleed from this type of endometrium, if normal. The finding of a chronic metritis is rather unusual and one should be on the lookout for such things as stem pessaries, pedunculated submucus fibroids, degenerating malignant growths and especially tuberculosis or possibly endometriosis of the uterus or adenomyosis.

Trichomonas vaginitis can be extremely irritating and either through intercourse or scratching produce abrasions which bleed. Also, as sometimes happens following hysterectomy, the circulation to the ovary is disturbed, leading to atrophy of these organs and a senile vaginitis which frequently bleeds with the trauma of intercourse.

Bleeding without trauma, however, is of more serious significance. Is the author sure that all of the uterus was removed, or was some endometrium left? If the uterus was removed, a curettage could not be done, but the cervical stump should be carefully investigated for cancer, particularly endocervical. Endometriosis not infrequently is seen in the cervix or vaginal wall, and these areas may menstruate if there is ovarian function. Tubercular ulceration of the cervix is rare.

Certainly a Friedman test should be done to rule out chorioepitheliomatous metastases. Vaginal smears after the method of Papanicolaou are useful in the diagnosis of cancer.

A large ovarian cyst should not cause this type of bleeding unless it was malignant and by direct extension the tumor grew through the vaginal wall.

ATHLETIC SUPPORT

To the Editor:—Does continual wearing of an athletic support result in premature enlargement of the prostate or in overstimulation of that gland?

M.D., Connecticut.

ANSWER.—No.

ARTIFICIAL EAR DRUM

To the Editor:—In many patients with a total loss of one or both ear drums the hearing can be remarkably improved by an artificial ear drum. The patients learn quickly to insert the ear drum in the proper place so that they are independent of the otologist. I have a number of patients, accustomed to an artificial ear drum, who prefer not to be without it. Can you inform me where I can obtain artificial ear drums?

Joseph Berberich, M.D., New York.

ANSWER—The American Optical Company, 8 South Wabash Avenue, Chicago, Illinois, carries a type of artificial ear drum which the patient may insert himself in suitable cases in which the drum membrane is absent and there is no active suppuration.

PROTEINURIA

To the Editor:—As an armed forces recruit medical examiner I have recently encountered an unusual increase in the number of cases of albuminuria coming to my attention. A few appear to be due to chronic nephritis, acute or chronic pyelitis, stone, abscessed teeth or recent acute illness. Irritation from drugs or poisons has appeared unlikely in all cases. It is those cases in which it is not possible to make a presumptive diagnosis that have me perplexed. Although I have been at my present duty station for fifteen months it is only in recent months (September and October, 1947) that the number of cases of albuminuria has apparently increased. During the months of June and July, 1946, physical rejections from all causes amounted to approximately 10 per cent. The applicants appeared to be of high caliber and were principally young men who had just finished high school. Rejections for albuminuria amounted to about 1 per cent. At present albuminuria causes the rejection of almost 20 per cent of applicants. However, the applicants at present are on the whole of a lower caliber. Albuminuria if constantly or intermittently present is cause for rejection, according to regulations, even if the origin cannot be determined (orthostatic albuminuria would be acceptable if it were possible for the medical officer to satisfy himself as to the diagnosis). It has been the practice of myself and co-workers to use Robert's reagent and then recheck all positive urinalyses by means of the heat and acetic acid test. We abide by the letter of the regulations and accordingly reject all applicants who show even traces of albumin on repeated tests, even if microscopic examination, history and physical results of examination are negative. It is not possible to give equal weight to a negative history from an applicant and that from a patient in private practice. The applicant frequently attempts to conceal important data for fear of rejection.

1. Is our present policy of rejecting all applicants who show persistent albuminuria, even in trace amounts and with negative microscopic examination, history, and physical examination, the correct one?
2. What percentage of an average group of adolescents might be expected to show orthostatic albuminuria?
3. Have such factors as food, sports, chemical content of water or soil been shown to cause albuminuria?
4. Would fatigue caused by a hundred mile train ride be a likely cause of albuminuria, and how long might it be expected to persist?
5. What is the present attitude of insurance companies toward young adults with albuminuria, normal microscopic appearance of the sediment and a negative history and physical examination?

E. J. Sullivan Jr., M.D., Baltimore.

ANSWER.—The problem of proteinuria in applicants for the armed forces demands serious attention because of the high incidence in the second decade, the importance of excluding the extremely low percentage of organic renal disease and the influence of extraneous factors in producing transient proteinuria in a rather high percentage of recruits, provided frequent urinalyses are performed. A number of excellent reports on this subject have been published in recent years. While physical fitness may be involved in those cases of proteinuria associated with malnutrition, poor muscle tone, defective posture or vasomotor instability, this is only one aspect of the problem. Basically, functional proteinuria is nearly always the result of renal vasoconstriction, whether of reflex or humoral chemical origin.

1. If persistent albuminuria is not associated with abnormal urinary sediment in a highly concentrated acid urine or with evidence of origin from prostate or seminal vesicles, postural or lordotic tests should be carried out carefully before rejecting the applicant. What is meant by "persistent"? The urine should be examined several times daily for several days under the precise conditions outlined in the references. Otherwise, many applicants will be turned down unnecessarily because of proteinuria due to exercise or emotional stimulation.

2. The percentage of adolescents with orthostatic albuminuria varies with age, the procedure, the frequency of testing, the season and other factors. It is highest at 16 years of age, about 5 per cent, and drops sharply with each succeeding year to less than 1 per cent at age 20. The incidence in July and August may be twice that in other months, presumably because of more concentrated urines.

3. The consumption of a considerable amount of raw egg white or a huge quantity of irritant spices may cause transient proteinuria in a susceptible subject. Chemical factors in water or soil are of no import in this regard.

A long train ride could well produce orthostatic proteinuria but this should disappear with recumbency.

5. The large insurance companies have learned from experience that there is no abnormal mortality in subjects with intermittent proteinuria proved to be orthostatic. Suspicion is aroused if the proteinuria exceeds 50 to 75 mg. per hundred cubic centimeters. An intravenous pyelogram may be requested to exclude urologic disease. On satisfactory evidence of the functional nature of the proteinuria in an applicant under 30 years of age, insurance will be granted without rating up

PAPAYA

To the Editor:—Is there a vegetable papain in papaya? If so, is there more in the ripe or green papaya? Is there any vegetable papain in the seed of the papaya? Is the papaya of any value in tenderizing meat?

M.D., Texas.

ANSWER.—The green fruit of papaya, Carica Papaya, is the chief source of the proteinase known as papain, which is a powerful proteolytic enzyme and is widely used for "tenderizing" meat. Crude commercial papain is prepared from dried latex collected from green fruits of the papaya plant. The proteinase activity decreases with the ripening of the fruit. The ripe fruit is eminently edible. Other parts of the plant are known to contain some papain.

CONGESTIVE HEART FAILURE

To the Editor:—I have seen patients in failure of the right side of the heart with clinical signs of nephritis and widespread rales in the lungs. Is cardiac failure on a rheumatic basis associated with the nephritis or are the thoracic rales those of pneumonia or failure of the left side of the heart? How can one differentiate between congestive failure on the basis of an associated rheumatic fever or a pure nephritis, granting that the urine shows albumin, red blood cells and casts?

M.D., New York.

ANSWER.—Two possibilities exist to explain the foregoing observations. First, congestive heart failure complicating rheumatic, hypertensive, coronary or other type of heart disease may produce evidence of such congestion both in the lungs (with basal rales) and in the systemic circulation with engorgement of the neck veins, liver and kidneys. Albuminuria with sediment is common in such conditions, and if there is a tendency to hypertension there is likely to be an increase thereof during the congestive failure. Most of the patients who were labeled as having cardiorenal disease in the old days actually had hypertensive heart disease with congestive failure.

The other possibility is that acute nephritis, especially of the hemorrhagic variety, may be associated with or lead to cardiac involvement and congestive failure, including edema of the lungs, which subsides after the acute renal process has cleared. Thus, it is important to note the antecedents in any case and to gage with considerable accuracy the severity of the actual renal involvement. If a patient without previous heart disease shows a picture such as that mentioned, one should look for nephritis with pulmonary edema. If, on the other hand, considerable chronic heart disease is known to have existed, then congestive failure with or without added nephritis should be suspected. The history and signs of structural heart disease and detailed renal studies as a rule afford the clues. Acute rheumatism of itself seldom produces this picture. Of course, there may be coincident diseases such as pneumonia and cardiac or renal disease.

RUBBING ALCOHOL

To the Editor:—I would like information or sources of information on the toxicity of rubbing alcohol. One preparation is ethyl alcohol with some flavoring substance added, and another preparation is isopropyl alcohol. Death occurred recently in a man aged 35, who was under observations for three days with weakness of the muscles of his arms and shoulders, vomiting, temperature ranging from 100 to 100.2 F, and pronounced mental confusion. Spinal puncture was not performed because he had had an extensive fusion operation for a compression fracture of his spine ten years ago. He died suddenly and unexpectedly from respiratory failure. He was a silent alcoholic of several years' duration and supposedly had taken some rubbing alcohol (unknown amount) five days before his death. In trying to arrive at a diagnosis poliomyelitis and acute myelitis were considered, but his mental confusion did not seem to fit in with conditions in these diseases.

M.D., North Dakota.

ANSWER.—There is wide variation in the composition of "rubbing alcohols" used in different institutions. Usually they consist primarily of denatured ethyl alcohol or of isopropyl alcohol in 50 to 70 per cent solution. Denatured ethyl alcohol contains substances which make it unsuitable for consumption—substances which give it a disagreeable smell or taste, or which produce physiologic effects such as vomiting in order to interfere with absorption. An official "special denatured alcohol formula 23 H" contains acetone, methyl isobutyl ketone and sucrose octa-acetate. "Formula 23 G" contains methyl propyl ketone and methyl isobutyl ketone in addition to sucrose octa-acetate. Each formula may also contain various odorous or colored compounds such as methyl salicylate (wintergreen oil) or certified green dye. These substances are not present in amounts large enough to have appreciable toxic effect, especially since denatured alcohol is disagreeable to take and is apt to be vomited if ingested in quantity.

A sufficient quantity of denatured ethyl alcohol taken by a habitual drinker might well cause vomiting, mental confusion and a moderate elevation of temperature, but that episode alone would hardly explain the reported muscular weakness of arms and shoulders or sudden death after five days.

What little is known about the toxicity for man of isopropyl alcohol when taken by mouth has been summarized by W. F. von Oettingen (The Aliphatic Alcohols: Their Toxicity and Potential Dangers in Relation to Their Chemical Constitution and Their Fate in Metabolism, Public Health Service Bulletin 281, Federal Security Agency, United States Public Health Service, 1943, pp. 121-122). Dizziness, muscular and nervous disturbances and headaches have been reported; also bradycardia and lowering of the blood pressure. Ingested isopropyl alcohol becomes concentrated in certain organs, particularly in the brain, heart muscle and kidneys. Pathologically, moderate reversible fatty infiltration may be found in these organs. Large doses of isopropyl alcohol in animals cause ataxia and narcosis; paralysis and dyspnea may precede death. The minimal fatal dose for rabbits and mice is 6.0 to 7.6 cc. per kilogram of body weight. Morris and Lightbody (The Toxicity of Isopropyl Alcohol, *J. Indust. Hyg. & Toxicol.* **20**:428, 1938) believe, that on account of its slow elimination isopropyl alcohol may have cumulative effects, which may be due either to the alcohol itself or to its oxidation product, acetone.

Conceivably, ingestion of a sufficient quantity of isopropyl alcohol could have caused the symptoms listed in the query, but without additional evidence it cannot be stated definitely that this patient's neurologic symptoms and death were due primarily to ingestion of "rubbing alcohol."

PRESBYOPIA

To the Editor:—Has evidence been presented to indicate that the age at which senile presbyopia develops is dependent on hormonal control? Is the early or late development of senile presbyopia a feature of any clearly demarcated endocrine disorder? Cataract is a feature of certain of the syndromes related to progeria; do patients with progeria but without cataract show senile presbyopia?

Willies Q. Wolfson, M.D., Chicago.

ANSWER.—Presbyopia is not a condition which comes on with old age, as its name implies. The eye at birth is imperfect. The ciliary muscle, which is the muscle of accommodation, is not yet ready to function. Development goes on for several years. At the age of 8 to 10 years accommodation is fully developed and reaches its maximum.

But accommodation (increase in refractive power) depends not only on the ciliary muscle and its nerve connections but on the capability of the crystalline lens to respond to the muscular action. It responds by becoming more convex not only on its surface but in its inner layers. This is possible only because of the plasticity of the crystalline lens. For a large accommodation, such as 12 D. or more, which is possible in the teens, the changes in the form of the lens are considerable.

As the child grows older the lens loses water and becomes less soft and plastic—in short, it undergoes sclerosis. This does not require any special hormone. If factors such as diet, vitamins and hormones should be found to affect the rate of progress of presbyopia, perhaps retarding it, there is no question but that the inexorable progress of presbyopia would go on—**merely** being delayed a few months. It is affected, of course, by the general health and metabolism of the person and by local disturbances of nutrition. Some of these result in loss of transparency and are called cataract. The outstanding fact is that the progress of sclerosis from say 8 to 10 years of age till death is steady and remarkably uniform in different persons. Probably there is no part of the body which ages so uniformly as the crystalline lens. Many (including some ophthalmologists) have tried to escape this steady progress by means of exercises and other treatment, but it is inexorable.

Presbyopia does, however, differ a little in different persons. In long-lived families the advance is a little slower, so that some persons at the age of 50 have as much accommodation—as little presbyopia—as others who are 3 to 5 years younger. It is well known that age cannot be measured in years alone. In persons with some myopia it may appear that the advance is slower. It is true that such patients can read at an older age than others, but it is not because their accomodation is of greater amplitude; it is because of their myopia, which may be due to a swelling of the lens either as it takes up more water, swells and becomes more convex or as it changes its refractive index. This accounts for the so-called second sight. Patients who were dependent on glasses to read find themselves again able to read without glasses. This is not due to any recovery of accomodation or avoidance of presbyopia. It is due to the onset of cataract, which in many cases is associated with changes in the refractive power of the lens which cause myopia. These patients have better near vision but cannot see as well as before at a distance.

DUPUYTREN'S CONTRACTURE

To the Editor:—What is the cause of and treatment for Dupuytren's contracture? My patient, a young woman, seems to have tenosynovitis involving the tendons to the middle finger of both hands. These (tendons) are prominent when the fingers are extended and painful enough at times (especially in the early morning) to interfere with rest. There has been no trauma and nothing about her work (housewife) that explains the condition.

Robert E. Cloud, M.D., Birmingham, Ala.

ANSWER.—The causative factors in the production of Dupuytren's contracture include trauma, infection and metabolic disturbances. Trauma might be acute and severe or (more important) multiple and minimal in character. Treatment of Dupuytren's contracture usually means operation.

The tenosynovitis of the palmar tendons to the middle finger of both hands brings up the subject of fibrositis. Unfortunately, the ubiquitous fibrous tissue is poorly understood and its basic disorders inadequately known. Here again the same causative factors come into focus. It is inaccurate to say that "no trauma and nothing about her housework explains the condition." The daily acts in the home constitute multiple minimal trauma. A few of these acts are: turning door knobs, using the broom or vacuum cleaner, carving meat, slicing bread and lifting heavy household articles. Occasionally the person with Dupuytren's contracture has a similar lesion of a foot.

FLUORINE IN DENTAL CARIES

To the Editor:—Some of my patients have asked me about the advisability of using fluorine compounds (1) by tablet, (2) in drinking water or (3) in tooth powder. In communities in which the water supply is not fluorinated, is it advisable to add a fluorine compound to the water used in the household for drinking or cooking purposes? What compound do you suggest and in what dosage? In the addition of such a compound to dental indicated? If so, what and how much is recommended?

M.D., New Jersey.

ANSWER.—In communities in which the water supply is not fluorinated it would not seem advisable to add fluorine compounds to the water used in the household for drinking and cooking. In the cities in which the water is being fluorinated, the concentration is under professional supervision and is not permitted to exceed the optimal level. At Grand Rapids, Mich., for instance, chemical analyses are made daily.

In respect to the use of fluorine compounds in (1) tablets and (2) tooth powder, attention is called to a recent editorial (The Role of Fluorine in Dental Caries: I. Synthetic Fluoride Tablets and Bone Meal Preparations, J. Am. Dent. A. 34:345 [March 1] 1947), which says in part: "Until more convincing data are presented, therefore, the use of fluorides in dentifrices, mouth washes, tablets and lozenges cannot be recommended."

MELENA

To the Editor:—What is the chemistry involved in the production of melena? Can bleeding from the cecum produce melena?

M.D., Illinois.

ANSWER.—The chemical factors involved in the production of melena still await final clarification. Such change is usually attributed to the action of the gastric juice on blood pigment. However, factors other than such a mechanism undoubtedly also play a role, because melena has been observed with variable frequency in traumatic, ulcerative and neoplastic lesions from the level of the upper part of the jejunum downward to the ileum. Benign tumors of the small bowel and hemorrhage from an ulcer in Meckel's diverticulum are good examples of this. Probably contributing, in whole or in large part, to the blackness of the stools are such hemoglobin derivatives in the intestinal tract as protoporphyrins and deuteroporphyrins. In Watson's opinion there is no concrete evidence that the coproporphyrins have a similar origin. The former give a positive reaction test with guaiacum or benzidine.

Carcinoma of the cecum can produce melena on rare occasions. As a rule the amount of bleeding is too small to discolor the feces. Factors concerned with the rate and amount of blood lost and the state of intestinal motility must be taken into account. For example, a sudden hemorrhage of 1,000 cc. or more of blood from the stomach or duodenum may cause red feces containing fresh blood.

NECROPSY FOLLOWING INCINERATION

To the Editor: Please send any possible information on the points which follow: (1) Postmortem reports on loss of blood from vessels when both upper and lower extremities are burned off to torso level (also dealing with the possibility that death had occurred previous to the fire), (2) How long after death would blood or blood clots be expected to remain in the superior or vena cava? (3) Would absence of blood in the ascending vena cava while present in the abdominal aorta be of significance?

M.D., Texas.

ANSWER.—Blood does not ordinarily escape from a body, either living or dead, as the result of the destruction of tissue by heat. Heat sufficient to destroy tissue converts the blood in the region of burning into a firm coagulum.

If the collapsed great veins of an extensively burned body are observed to contain so little coagulated blood as to suggest antemortem exsanguination, the next step should be to determine whether or not death had occurred previous to the fire. If a person dies during and because of a conflagration, the air passages are usually observed to contain an excessive amount of soot-laden mucus. Absence of evidence that smoke had been inhaled would suggest that the person was probably dead before or soon after the fire started. The carbon monoxide content of the blood is another indication of the time of death in relation to the fire. The absence of carbon monoxide (over 5 per cent saturation) in the fluid blood of a burned body indicates that death occurred before much smoke or other gaseous combustion products had been breathed.

The length of time that recognizable blood or blood clots remain in the superior and ascending vena cava of a badly burned person will vary according to the intensity of the thermal exposure and to the duration of the postmortem interval. If the blood has been thoroughly cooked, it will remain as a firm coagulum for many days. It is possible, however, for the heat to be sufficiently intense to destroy the extremities but of insufficient duration to coagulate the blood in the superior and inferior vena cava. In such an event most of the blood contained in these vessels remains fluid. Early postmortem diffusion of the hemolyzed blood through walls of the vessels into the surrounding desiccated tissues may lead to vascular collapse and apparent loss of blood.

The "absence of blood in the ascending vena cava while present in the abdominal aorta" may be due to the fact that postmortem diffusion of hemolyzed blood occurs more rapidly through the walls of veins than it does through the thicker walls of arteries.

DRIBBLING OF URINE

To the Editor:—Please inform me whether there is any reliable treatment for dribbling of urine in a girl 7 years old, without apparent anatomic anomalies.

Adalbert Miskowiec, M.D., Santa Fe, N. M.

ANSWER.—Any reliable treatment for dribbling of urine in a 7 year old child without apparent anatomic anomalies should be preceded by careful examination and exclusion of bladder or urethral defects. This should be accompanied with a laboratory urinary examination as well as examination of the stool. In this way the following causes for the dribbling may be ruled out: pyuria, diabetes mellitus, diabetes insipidus, pinworms, urethritis and highly acid urine. Roentgenographic examination should be made to rule out spina bifida and foreign body or calculus in the bladder.

If no organic causes are observed, minor psychiatric difficulties, such as neuropathic or personality disorders, should be investigated.

The following drugs may be recommended when no organic cause has been found: tincture of belladonna, sedatives and testosterone propionate, in appropriate doses. Finally, the following nonspecific therapy has been advocated:

1. Instigation of bladder control by training the child to start and stop urinating at command; thus, "Start! Stop! Start!" may be helpful.

2. General gymnastics to benefit the health of the child, especially exercises calculated to stimulate normal and uniform circulation are beneficial. Slow bending and stretching, trunk exercises and respiratory exercises are advisable.

3. Sometimes a two day rest cure is given, requiring that the child have his breakfast in bed and remain in bed until his lunch time. Such a plan may be pursued two days each week, at the beginning and the end of the week.

HELIUM IN PNEUMOTHORAX

To the Editor:—Is helium being generally used in pneumothorax? How much slower is the rate of absorption than oxygen? Is the gas used alone, or is it mixed with oxygen and, if so, in what proportion? Where can helium be obtained commercially?

I. B. Oldham Jr., M.D., Muskogee, Okla.

ANSWER.—Helium is not being used generally in pneumothorax. It was advocated in a preliminary report by Lieutenant Commander E. Ricen, Medical Corps, United States Navy (U. S. Nav. Med. Bull. 40:853-855, 1942) on the premise of prolonging the time interval between air injections into the pleural and peritoneal cavities for collapse in pulmonary tuberculosis. The speed with which gases disappear from body cavities is proportionate to their stability coefficients, diffusion speed and chemical affinities for substances dissolved in the blood. Helium, because of its low solubility coefficient in water and in oil, compared with the coefficients for nitrogen is recommended as a substitute for air, according to this report. Behnke and Yarbrough (U. S. Nav. Med. Bull. 36:542-558, 1938) observed that the solubility coefficients for helium in water and in oil compared with nitrogen is in the ratio of 2 to 3 for water and 1 to 4.5 for oil. Oxygen, a component of air, is absorbed much more rapidly than either of the inert gases, helium or nitrogen. Helium, being an inert element, does not enter into chemical combination with blood substances. Ricen selected peritoneal absorption speed because it offered certain advantages over the pleural cavity for conducting his investigation, since gas collects under the diaphragmatic leaves and is readily visualized by fluoroscope and the results are reasonably accurate. A series of cases of pulmonary tuberculosis with previous phrenic nerve paralysis, supplemented by pneumoperitoneum, was selected for study. All the patients had been receiving weekly injections of 1,000 cc. of air into the peritoneal cavity. In all instances a longer period of time was required for the disappearance of 1,000 cc. of helium from the peritoneal cavity than of an equal amount of air. Four to six days longer were required for the complete disappearance of 1,000 cc. of helium from the peritoneal cavity than for disappearance of an equal quantity of air. Helium was well tolerated by the peritoneal cavity. Apparently helium is used alone; no mention of mixing with oxygen is made. Helium, about 98 per cent pure, can be obtained commercially from surgical supply houses in cylinders. The price is about $3.60 for a size D cylinder. It is used with anesthetic gases.

ENURESIS

To the Editor:—What is the present status of chorionic gonadotropic preparations in treatment of enuresis? The mother of a child has brought to my attention some favorable comments by one of the medical columnists in daily papers concerning use of this preparation. I am unable to find any confirmatory reports, and it appears to me that the potentialities for harm are too great to justify use of these preparations without good cause.

John M. Higgins, M.D. Sayre, Pa.

ANSWER.—The use of chorionic gonadotropic preparations for enuresis has been generally discontinued and should be completely abandoned. Its earlier use was based on a mistaken interpretation of the fact that many girls discontinue bed wetting with the onset of the menses or after the menses are well established. This was thought to indicate a sudden development of a previously weak or undeveloped urinary tract under the stimulus of increased hormones related to the establishment of the menstrual function. For many years this mistaken idea prevented the realization that enuresis ceases with the profound psychic change that comes to every girl at that time: "I'm a woman now and must put away childish things."

After careful examination has failed to reveal any defect or infection in the urinary tract, the treatment of enuresis must be reeducation of the parents as well as the child, rather than the use of any drug, hormone, change in diet or fluid intake or any surgical instrument. Any surgical or medical treatment that is unpleasant, such as repeated injections, may cause an intelligent child to substitute some other infantile behavior for enuresis. When such a substitution is made, enuresis ceases, and the last method of treatment used gets unearned credit, while the child is left without any advance in emotional growth and development and the parents gain nothing that will help them assist their child to become an adult emotionally—a reasonable human being.

STELLECTOMY

To the Editor:—What is the accepted opinion today on stellectomy (surgical removal of the stellate ganglion) for angina pectoris? Have you available the names of the surgeons in Chicago most actively engaged in the use of this method?

H. D. Caleb, M.D., Chicago.

ANSWER.—Sympathectomy for angina pectoris has limited usefulness in relieving intractable pain in patients whose myocardial reserve permits a two stage retropleural operation. Stellectomy alone

has been observed to be insufficient for this purpose, and it is necessary to remove the ganglionated chain from below the fifth dorsal segment to above the second. This can be done by a generous resection of the third rib paravertebrally.

Surgeons doing this type of work are specialists in vascular surgery or neurosurgery. An inquiry directed to any of the medical schools in Chicago will yield further information.

ERYTHROBLASTOSIS

To the Editor:—A normal baby, weighing 8 pounds 2 ounces (about 3,685 Gm.), was born by cesarean section (disproportion). Eight hours after birth severe jaundice developed in the baby (icterus index 135). A smear showed numerous erythroblasts and 70 per cent reticulocytes. Erythroblastosis was ruled out, the mother's blood being Rh positive. Subsequent smears showed typical spherocytes. A hematologist made the diagnosis of familial hemolytic jaundice, although the spleen and liver are not enlarged and the family history reveals only one typical attack of infectious hepatitis in the father. His blood smear did not show spherocytes. The baby at present (age 7 weeks) is normal in appearance, weighing 11 pounds 12 ounces (about 5,330 Gm.), and receives a routine formula plus 5 grains of ferrous sulfate daily. However, his hemoglobin which was 110 per cent (16.9 Gm.) at birth, has dropped to 55 per cent (8.4 Gm.). The following questions arise: 1. Is this a definite case of familial hemolytic jaundice in spite of the absence of enlargement of the spleen and liver and of a family history of the disease? 2. If the disease is present, how soon is splenectomy indicated? 3. Are blood transfusions indicated at present? 4. Is the iron added to the baby's formula of any value in preventing a further drop in hemoglobin? 5. What is the prognosis after splenectomy? 6. What are the chances that the disease may appear in the baby's offspring? 7. Have there been any new development in treatment aside from splenectomy?

Hmro Rosenberg, M.D., Sherman Oaks, Calif.

ANSWER.—No mention is made of a search for spherocytes in the mother's blood. Familial hemolytic jaundice may be passed on by either the father or the mother to the child. Spherocytes, if present, would be expected to persist in the blood stream rather than to disappear.

Though familial hemolytic jaundice does appear in the early age groups, it is extremely rare in newborn babies. Though splenomegaly may be absent, this is infrequent. In this disease, particularly in the early age groups, once jaundice has appeared it tends to persist or increase. In this infant, "normal in appearance," it is assumed that there is no longer evidence of blood destruction, namely jaundice, elevated serum-linked bilirubin or increase of urobilinogen in the stools, but only anemia. There is no mention of determinations of red cell fragility. From the evidence available, it is improbable that this is a case of familial hemolytic jaundice.

Erythroblastosis is not ruled out because the mother's blood is Rh positive. Some 5 to 15 per cent of babies with erythroblastosis are born of mothers with Rh positive blood. In these cases the Rh factor is of no etiologic importance, though the mechanism is similar. Antibodies develop in the mother against the baby's blood, the type having been inherited from the father. Blood types A and B are most commonly involved. If by passive transfer this antibody titer becomes sufficiently high in the baby's blood stream, blood destruction and erythroblastosis develop. It is possible that the case described falls into this category. However, with the meager evidence at hand, this conclusion cannot be drawn with certainty.

Since the child has survived seven to eight weeks, the prognosis is probably favorable. There is no indication for splenectomy. Small carefully typed and administered transfusions are indicated. Iron therapy may be of value.

NORMAL TEMPERATURE VARIATION

To the Editor:—A 5 year old girl has been having elevation of temperature, reaching 99.6 F. (orally), each evening for the past two weeks. There are no physical observations to account for this. Examinations of the blood and the urine revealed no abnormalities. A roentgenogram of the chest revealed no abnormalities. Can such temperature variations be considered within normal limits?

Oscar H. Plothin, M.D., Elgin, Ill.

ANSWER.—The elevation of temperature to 99.6 F. (orally) each evening in a 5 year old girl may be considered within normal limits if all sources of infection, both acute and chronic, have been ruled out. Exercise is a frequent cause of elevation of temperature, both in children and in adults. This has been demonstrated in a young girl, whose temperature was 99.9 F. after thirty minutes of exercise, but after thirty minutes of rest her temperature fell. Children with neuropathic conditions respond more readily to an increased bodily temperature after exercise than normal children. These oscillations in temperature are so universal that they should be considered normal manifestations based on a somewhat unstable heat-regulating mechanism in young children.

LIMITATION OF SHOULDER MOTION

To the Editor:—What information is available on treatment of deltroid bursitis and tenosynovitis about arm and shoulder points? I am the patient, 62 years of age, physician, 6 feet 1 inch (185.4 cm.) tall; weight 206 pounds (93.4 Kg.). Had all the diseases of childhood; pneumonia, bilateral with delayed resolution in 1919, followed by mitral murmur, bronchitis and severe sinus disease. I have remained active until about ten months ago, when my arms and shoulders became limited in action because of the aforenamed trouble. Roentgen treatment gave no relief. Salicylates do no good and upset my digestion. I will greatly appreciate suggestions.

M.D., New Mexico.

ANSWER.—It is difficult to answer the inquiry because it is not clear from what precise condition the patient is suffering and the results of roentgenography are not stated. Shoulders can become painfully limited as a result of several conditions: rheumatoid arthritis of the glenohumeral articulation, osteoarthritis of the acromioclavicular joint, calific or noncalific tendinitis of any one of the four small rotator muscles, degenerative changes and tears in the musculotendinous cuff, tenosynovitis of the long biceps tendon, or the "shoulder-hand syndrome." Treatment varies widely, depending not only on the condition present but also on the stage (of acuteness or chronicity) of the condition and the amount of disability resulting therefrom. Space does not permit differentiation of these varying conditions.

Perhaps the lesion which most commonly produces painful limitation of shoulders in patients more than 45 or 50 years of age is calcific or noncalcific tendinitis of the supraspinatus tendon, a condition often erroneously called "subdeltoid bursitis." This condition is thought to result from the "wear and tear" of repeated minor trauma. Symptoms may be acute and extremely painful for a short time, or they may be chronic. Treatment during the acute phase consists of rest (often with temporary immobilization of the shoulder in the abducted and outwardly rotated position), local application of heat and the use of analgesic agents

for symptomatic relief. To decrease digestive intolerance, salicylates may be taken with 3 to 8 fluidounces (89 to 237 cc.) of milk, or an alkali such as sodium bicarbonate in a dose equivalent to the dose of salicylate can be employed, or enteric-coated preparations of salicylate can be used. Roentgen therapy may be tried, since it sometimes gives additional relief of symptoms. Needling and the local injection of anesthetic solutions also are used in some instances.

When symptoms are chronically present, the measures which have been described are supplemented by more intensive physical therapy including heat, massage and active or active-assistant exercises designed to increase the range of motion. An exercise program, carefully prescribed and conscientiously followed, often is a neglected but important feature of the treatment. In most instances recovery of normal or nearly normal range of motion is necessary before pain and other discomfort are relieved. When adequate trial of conservative measures does not result in satisfactory improvement, manipulation of the shoulder with the patient anesthetized, or surgical exploration, may become indicated.

SYPHILIS

To the Editor:—I have a patient with latent syphilis with tabetic changes. I intend to give him 10,000,000 units of penicillin, injecting 300,000 units in Romansky's formula twice daily. In the light of latest experiences is this treatment sufficient or should it be supplemented with a preparation of bismuth or arsenic?

M.D., New York.

ANSWER.—The terms latent syphilis and tabes dorsalis are mutually exclusive. If the patient has "tabetic changes" he cannot have latent syphilis, which by definition is that form of syphilitic infection without symptoms or physical signs and manifested only by a positive serologic test. Before offering specific advice with regard to the patient in question, it is essential to know what are the tabetic changes with particular reference to a detailed account of symptoms, physical signs and examination of the spinal fluid, including cell count, quantitative protein estimation, quantitatively titered complement fixation (not flocculation) test and colloidal gold test. It is also important to be sure that the patient has no psychiatric manifestations of dementia paralytica. The effect of penicillin in tabes dorsalis can so far be measured only in terms of changes in the spinal fluid and amelioration of symptoms. Not enough time has elapsed since the introduction of penicillin therapy to be sure that this form of treatment will arrest further progress. In tabes, as in other forms of neurosyphilis, penicillin usually brings about prompt improvement in the abnormalities of the spinal fluid, especially cell count and protein content, which in about 90 per cent of cases return to normal within a few months. In the majority of cases, likewise, this improvement is maintained at least over a period of several years. Whether or not inactivity of the spinal fluid indicates the probability of arrest of the tabetic process cannot yet be determined. As to symptomatic relief in tabes dorsalis following penicillin therapy, this depends almost entirely on the individual symptom. There is about an even chance of some relief from lightning pains, which in some instances is only temporary. Other symptoms such as ataxia, urinary disturbances and impotence, are less favorably affected.

There are differences of opinion as to whether the treatment of tabes is best accomplished with penicillin alone or with penicillin plus induced malaria. A choice between these two methods of treatment may depend on the patient's physical condition. If this is sufficiently satisfactory to indicate that he may tolerate fever therapy without undue risk, it is probable that more significant symptomatic improvement will be accomplished by this than by penicillin alone; likewise, it is probable that arrest of the process will be accomplished. Perhaps a fair suggestion is that the patient be treated with penicillin first and, if improvement does not occur within a period of six months, retreatment be given with penicillin plus induced malaria. If penicillin in peanut oil and beeswax is employed, it is unnecessary to give the drug twice a day. A single daily injection of 600,000 units is ample. There is no indication for the use of bismuth and arsenic preparations in tabes dorsalis, since these drugs accomplish comparatively little in most cases. Finally, if the patient has primary optic atrophy, a common manifestation of tabes, time should not be wasted by treatment with penicillin alone. Penicillin plus induced malaria infection should be used from the start.

SWELLING OF PAROTID GLAND

To the Editor:—Regarding the query, "Swelling of the Parotid Gland", THE JOURNAL, February 14, 1948 we submit our opinion. In Nitchel-Nelson's "Textbook of Pediatrics" the complication of mesubrial swelling in mumps is mentioned, and reference is made to the description by Gellis of its occurrence.

In a patient under our care we have seen a case similar to that described which occurred during an epidemic of mumps at a nearby Army post; we believe that this may well have been the same. One must also consider the possibility of scleredema (not scleroderma), though this is less likely.

John B. Reinhart, Captain, M.C., A.U.S.

To the Editor:—Regarding the query "Swelling of the Parotid Gland" THE JOURNAL, February 14, page 511, may I add the following note: The swelling described over the mesubrium has been repeatedly observed in mumps and is apparently independent of the parotid swellings. I observed 3 instances in over 600 cases of mumps in an Army training camp. Case reports of this phenomenon have been published under the title of "prosternal edema." It has been variously interpreted as due to thymic or thyroid involvement by mumps, or (more likely) involvement of the substernal lymph nodes producing obstructed lymphatic drainage of the prosternal tissues. I have repeatedly observed fever and leukocytosis accompanying the onset of involvement of additional glands, or other complications of mumps; hence, this would not be a reliable criterion with which to rule out the disease.

Samuel Zelman, M.D., Topeka, Kan.

ARGYRIA

To the Editor:—In Queries and Minor Notes, THE JOURNAL, February 7, page 432, subject argyria, information was requested as to the use of 2,3-dimercaptopropanol (BAL) in the treatment of argyria. In April 1947 a patient at the Veterans Administration Hospital, Aspinwall, Pa., was given two courses of BAL in oil as treatment. No silver could be recovered in the urine after treatment; there was no change in the clinical appearance of the patient, and punch biopsy of the skin before and after treatment showed no change in quantity of silver in the tissue. It was concluded that BAL is unable to mobilize silver present in tissue in the metallic state and would consequently be of no use in the treatment of argyria. This was written up for publication. The unsuccessful use of BAL in treatment of experimental argyrosis in rats has already been reported (Olcott, C.T., and Riker, W.F.: Experimental Argyrosis. II. Treatment of Rats Receiving Silver with 2,3 Dimercaptopropanol (BAL), *Science* 105:67, [Jan. 17] 1947).

Arthur P. Klotz, Aspinwall, Pa.